Undergraduate Research Symposium

CLASS OF 2017

NYU SHANGHAI

上海纽约大学
NYU Shanghai Undergraduate Research Symposium

Welcome to the first annual NYU Shanghai Undergraduate Research Symposium, a university-wide celebration of research by graduating seniors spanning the arts and sciences, engineering and business.

The Symposium showcases recently completed projects by Major Honors students, as well as research papers and creative work undertaken by graduating students for their Capstone Projects, Independent Study Courses and as part of the Dean’s Undergraduate Research Fund (DURF).

Projects are divided into four categories: oral presentations, one-on-one poster presentations, technical demonstrations and art displays or performances. Visitors will have the opportunity to cast a vote for the project that most impresses them, while a panel of NYU Shanghai faculty and external judges from local universities and industries will choose a winning presentation for each category.

We hope you enjoy your visit!

John Robertson
Assistant Provost for Academic Affairs
New York University Shanghai
Symposium Schedule

1:00 PM  Symposium Opens

1:00-2:55 PM  Oral Presentations  2F Classrooms
   - Business, Room 209
   - Humanities, Self-Designed Honors Major,
     Social Science, Room 210
   - STEM (Biology, Computer Science), Room 211
* Detailed schedules for oral presentations can be found on p.32, 40, 48

1:00-2:55 PM  Poster Presentations  3F Corridors
   - Business
   - Economics, Global China Studies, Social Science
   - STEM (Chemistry, Computer Science, Math,
     Neural Science)

1:00-2:55 PM  Technology/Visual Art Presentations  Room 826
   - Electrical Engineering
   - Interactive Media Arts
   - Studio Arts

1:00-2:55 PM  Photography Exhibition  3F outside Auditorium
1:30-2:40 PM  Performing Arts  Auditorium

3:00 PM  NYU Shanghai Alma Mater
Keynote Speech & Award Ceremony  Auditorium
Types of Presentation

1. Oral Presentations

All Major Honors students of the following majors are required to participate in oral presentation as an individual:

<table>
<thead>
<tr>
<th>Major</th>
<th>Guidelines and Requirements</th>
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<tbody>
<tr>
<td>Biology</td>
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<tr>
<td>Business &amp; Finance</td>
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<tr>
<td>Business &amp; Marketing</td>
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<td>Chemistry</td>
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<td>Computer Science</td>
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<td>Economics</td>
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<tr>
<td>Global Chinese Studies</td>
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<tr>
<td>Humanities</td>
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<tr>
<td>Mathematics</td>
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<tr>
<td>Neural Science</td>
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<tr>
<td>Physics</td>
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<tr>
<td>Self-Designed Honors Major</td>
<td>Students will each have 10 minutes to present their projects, and 5 minutes to take questions.</td>
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<tr>
<td>Social Sciences</td>
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</table>
2. Poster Presentations:

<table>
<thead>
<tr>
<th>Project Subject</th>
<th>Guidelines and Requirements</th>
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</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Students will have 2 hours to stand with their posters and answer questions.</td>
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<tr>
<td>Business</td>
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<tr>
<td>Chemistry</td>
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<td>Computer Science</td>
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<tr>
<td>Creative Writing</td>
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<td>Economics</td>
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<tr>
<td>Global Chinese Studies</td>
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<tr>
<td>History</td>
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<td>Humanities</td>
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<td>Math</td>
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<tr>
<td>Neural Science</td>
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<tr>
<td>Philosophy</td>
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<td>Physics</td>
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<td>Social Science</td>
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<td>Dean Service Scholars (DSS)</td>
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3. Technology / Visual Demonstrations:

<table>
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<tr>
<th>Project Subject</th>
<th>Guidelines and Requirements</th>
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</thead>
<tbody>
<tr>
<td>Computer Engineering</td>
<td>Students will be assigned a small area in which to display their 2D or 3D works. They will have 2 hours to demonstrate and answer questions.</td>
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<tr>
<td>Electrical Engineering</td>
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<tr>
<td>Interactive Media Arts</td>
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<tr>
<td>Photography</td>
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<tr>
<td>Studio Arts</td>
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</table>
Judges & Keynote Speaker
Raymond Ro

Raymond Ro is Clinical Assistant Professor of Business. He is an engineer, lawyer, and professor. He has been in Shanghai since 2010 and is currently a Lecturer at the Sino-British College in conjunction with the University of Shanghai for Science and Technology, and a Senior Advisor at Addison-Clifton LLC where he assists clients with international trade compliance issues and intellectual property matters. Dr. Ro holds a B.A. in Physics and Biology from Lake Forest College in Chicago, and a Ph.D. in Biomedical Engineering from Drexel University in Philadelphia. The focus of his doctoral dissertation was using ultrasound technology for early detection of cancer. Later, due to legal issues related to a start-up company, Dr. Ro went on to earn a J.D. from the University of Wisconsin Law School in Madison. His academic interests include: the intersection of law, business, and technology; entrepreneurship; management and organizations; and comparative intellectual property law. Raymond enjoys playing sports, learning Chinese, trying unique foods, and watching American football.
Ramesh Moosa

Ramesh is a partner in the PwC Forensic Services practice in China/Hong Kong. He also leads the Forensic Technology Solutions (FTS) team in the greater China region. Ramesh has over 21 years of experience and has worked at PwC in Singapore, US, Hong Kong/China to provide Investigations, Computer/Cyber Forensics, eDiscovery, Data Analytics Services to multi-nationals, law firms, local and public sector organisations including regulators in the financial industry. Prior to joining PwC in 2000, Ramesh was a Senior Officer with the Singapore law enforcement agency where he held various roles including criminal investigations, technology management and data security.

As an experienced criminal investigator who is also skilled in Forensic Technology, Ramesh has led large-scale Forensic Technology workstreams and directed investigations into financial crimes, infringements of the Foreign Corrupt Practices Act (FCPA), breaches regarding intellectual property, cybercrime and employee misconduct and other fraud matters. Many of these investigations were reported to regulators such as the US Securities and Exchange Commission, US Department of Justice, HK Securities and Futures Commission and HK Monetary Authority.
Bob Ching

Bob has been professionally active in Northeast Asia since 1975.

Since 1985, Bob has been continually involved with subjects relating with economic and enterprise reform in China. In recognition of his contributions, the Shanghai Municipal Government awarded Bob the Magnolia Medal in 1997.

Bob holds degrees from the California Institute of Technology, Harvard University, and Carnegie-Mellon University. Prior to joining BCG, Bob worked at IBM’s Education Research Center and taught physics and economics respectively at the National Taiwan University and Carnegie-Mellon University.

Bob served as the Chairman of the Harvard Alumni Association of Shanghai between 2012 and 2014.

Bob and his wife, Emily, spend their time about fifty percent each in the United States and in China.
Roderick Hills
Roderick Hills, Jr., is an affiliated professor at NYU Shanghai. He is also the William T. Comfort III Professor of Law at New York University School of Law. He has taught at the University of Michigan Law School, Stanford Law School, Columbia Law School, Harvard Law School, and Yale Law School. He holds a JD and a BA from Yale University.


Hills is a member of the New York Bar and has served as a cooperating counsel for the ACLU of Michigan. Hills was the winner of the Paul M. Bator Award for significant public impact through scholarship, excellence in legal scholarship, a commitment to teaching, and a concern for students.
Humanities, Social Science · Oral Presentation

Yun Chen

Yun Chen is Professor at School of International Relations and Public Affairs, Fudan University (China). She got Ph.D. in Development Economy and Regional Economy, Hiroshima University (Japan) in 2001. Before that, she also got M.A. in Economic Geography, Hiroshima University (Japan) in 1998, M.A. in Political Science, Fudan University (China) in 1996, and B.A. in Political Science, Fudan University (China) in 1992.

Prof. Chen is trustee of Shanghai Political Science Association, Research fellow of Japan Research Center at Fudan University. Her Study orientation focus on Empirical and Institutional Study of Public Polices. Related disciplines:
(1) Comparative Politics; Environmental Politics
(2) Development Economies, Regional Economies
(3) New Political Economies, Transitional Economies
Xiaohua Zhong
Xiaohua Zhong is Assistant Professor of Sociology at Tongji University, researcher of WHITRAP (World Heritage Institute of Training and Research for the Asia and the Pacific Region under the auspices of UNESCO) and Tongji City and Society Research Center. Her research focuses on urban regeneration, community governance, heritage conservation, creative industry cluster, etc. She has recently published a book on “How Tianzifang became Possible” (Fudan University Press, 2016). She is currently conducting research projects on neighborhood social planning and community-based commerce.
Guodong Chen is a Visiting Assistant Professor of Finance at NYU Shanghai. Prior to joining NYU Shanghai, he was a PhD candidate at University of Michigan. He holds a PhD and dual M.A. degrees from University of Michigan, a M.A. degree from Peking University, and a B.S. degree from University of Science and Technology of China.

Professor Chen’s research interests are Banking and Financial Intermediation, Household Finance, Corporate Finance and Financial Economics.

Professor Chen is a member of AFA, AEA, FMA, and Econometric Society.
Jesse St. John

Having worked in the logistics and transport industry for over 15 years, Mr. St. John is currently the Marketing Director at Sinotrans International Logistics. Mr. St. John holds commercial and operational expertise in logistics and supply chain operations throughout the Asia-Pacific region.

Mr. St. John’s professionalism and business acumen has allowed him to develop into an industry expert in aspects such as commercial strategy, project management, organizational design, and operations management. He has negotiated, closed, and implemented logistics contracts valued at $690M over the past 5 years alone and is a graduate of Linfox’s Leadership Development Program. Mr. St. John holds particular expertise in business modelling and general management.

Mr. St. John holds a Master’s degree from NYU Stern in Global Finance and an M.B.A. in International Management from Ecole Nationale des Ponts et Chaussées, located in Paris. Mr. St. John lived in Shanghai since 2005 while also spending 2 years in Australia in 2008-2010.
Jiayi Du

Jiayi Du graduated from New York University and is pursuing her PhD degree on Marketing. After graduation from NYU, she has worked as a lecturer in the Shanghai University of International Business and Economics. She gave courses including “Special Events Marketing and Management”, “Event Marketing”, “Services Marketing” and so on. Her main teaching and research topics are experience economy, entertainment industry, and strategic marketing. She is also involved in the teaching program of NYU Shanghai.

During 2014 and 2016, she worked in the Shanghai Shendi Group as the Director of Training Program for two years. Shendi Group owns Shanghai International Tourism Zone and holds the 57% share of the Shanghai Disney Resort project. She is responsible for developing staff training courses and building up the company training system.

She has also been the event leader of Shanghai NYU alumni club since 2013. Under her leadership, Shanghai Club has held many different kinds of events, including 2nd Pan Asia Conference, Happy Hour, Academic Seminar, and Annual Gala Dinner.
Lena Scheen
Lena Scheen is Assistant Professor of Global China Studies at NYU Shanghai. Prior to joining NYU Shanghai, she taught at Leiden University and the University of Amsterdam. She holds a PhD from Leiden University and was a Postdoctoral Fellow with the International Institute for Asian Studies. Scheen is a member of the Urban Knowledge Network Asia (UKNA).

Scheen’s research explores the social and cultural impact of China’s fast urbanization, focusing on Shanghai. Her publications include Shanghai Literary Imaginings: A City in Transformation (Amsterdam University Press, 2015) and the edited volume Spectacle and the City: Chinese Urbanities in Popular Culture and Art (AUP, 2013).
Yifei Li
Yifei Li is Assistant Professor of Environmental Studies at NYU Shanghai, and Affiliated Faculty of Environmental Studies at NYU. Prior to joining NYU Shanghai, he taught at the University of Wisconsin-Madison. He holds a Ph.D. from the University of Wisconsin-Madison and an LL.B. from Fudan University.

Professor Li’s research examines environmental governance, bureaucracy, and international development. He also collaborates with other scholars to better understand urban sustainability, eco-tourism, participatory planning, and related topics. He has received research support from the National Science Foundation (2013), the University of Chicago Center in Beijing (2014), the China Times Cultural Foundation (2015), and other extramural sources.
In addition to her interest in the aesthetics and practices of film sound in association with visual representations, her teaching and research also concentrate on the studies of Chinese-language film (including mainland China, Hong Kong, Taiwan, and Chinese diasporas), East Asian popular cultures, theories of globalization and cultural translation, as well as mass media. She has published articles on Chinese female writers, Chinese documentaries, Chinese hip hop culture, Chinese rock ‘n’ roll film, and Chinese film industry under neoliberal globalization. She is currently working on a book manuscript on soundscape and mediascape in contemporary China.

Her background in media production and film curatorship further complements and enhances her academic pursuits from an interdisciplinary, transnational, and cross-media perspective. Before joining the University of Florida, she was involved in a series of TV and documentary productions. She has participated in the curatorship of Reel China Documentary Film Festival since 2004 and organized “DV China and Social Change” film series and workshop at UF in 2011.
Chuli Duan

Chuli Duan is the Manager of Corporate Strategy at Collective Responsibility, a leading strategic advisory firm based in Shanghai. Since joining the team in December 2014, Ms. Duan has overseen the development and execution of all university programs of CR, and has worked with a few MNCs to develop their strategies on talent recruitment, product innovation and corporate responsibility.

Previously, Ms. Duan worked at the Washington, DC office of World Resources Institute (WRI), a leading environmental think tank, where she supported the senior management team with strategy setting and internal and external communications. She has over 6 years’ experience working with NGOs, governments and international organizations on various social and environmental issues, both in China and the US.

Ms. Duan holds a Master’s degree in International Economics and International Relations from the Johns Hopkins School of Advanced International Studies (SAIS), and a Bachelor’s degree from Nanjing University of Aeronautics and Astronautics.
Ross is an expert on all matters relating to the Internet and Internet applications, including the design, modeling and measurement of the Internet, as well as societal issues surrounding the Internet. His research group has published extensively on Internet privacy, Internet piracy, peer-to-peer networks, Internet security, and video distribution in the Internet. Ross is the author (with James F. Kurose) of the textbook, Computer Networking: A Top-Down Approach (first edition in 2000, sixth edition 2012), which is the most popular textbook on computer networking, both in the US and internationally, and has been translated into fourteen languages. Professor Ross is also the author of the research monograph, Multiservice Loss Models for Broadband Communication Networks, published by Springer in 1995. He is the recipient of numerous best-paper awards, and his work has been featured extensively in the media, including New York Times, NPR, Bloomberg Television, Le Monde, and the Huffington Post.

He is both an ACM Fellow and an IEEE Fellow. Ross received his Ph.D. from the University of Michigan. He was a professor at University of Pennsylvania for thirteen years and a professor at Institute Eurecom (France) for five years before joining NYU Tandon School of Engineering. While in France, he founded the multimedia online learning company, Wimba, which was later acquired by Blackboard. He served as Head of the Department of Computer Science and Engineering at NYU Tandon School of Engineering from 2008 to 2013.
Arnold Lau
Bethwyn Todd
Vice President, Asia President and Director of Asia Agricultural Solutions, FMC Corporation

Bethwyn Todd was named Vice President and Director for Agricultural Solutions in Asia and President of FMC Asia in December 2014. She was previously the Global Business Director of FMC Professional Solutions, Seed Treatment and BioSolutions. Ms. Todd joined FMC in 2010 as Asia Pacific Development and Regulatory Manager in Bangkok, Thailand.

Prior to FMC, from 2002 to 2009, Ms. Todd worked at Monsanto, where she held several leadership, commercial and regulatory roles including Managing Director of the Monsanto Australia business. From 1996 to 2002 she worked in the Australian Government Department of Agriculture, holding agricultural policy, program and management roles.

Ms. Todd earned a Bachelor of Science degree from the University of Queensland and an MBA from Deakin University.
Will Glover received his PhD from the University of California, Los Angeles, in 2009 and has since held postdoctoral fellowships at Stanford and UCLA. In his research Will uses the concepts and tools of statistical mechanics and quantum mechanics, in combination with high-performance computational simulation methods to understand condensed- and gas-phase dynamics—at the atomistic, “first principles” level—that produce testable predictions with regard to measurable (e.g. spectroscopic) phenomena. He is already quite widely published including in the prestigious journal Science.

Dr. Glover is particularly interested in applying these tools to high-profile questions such as the structure of hydrated electrons and the atomic mechanisms of energy transfer in bacterial and chloroplast photosynthetic systems, with applications to such fields as the rational design of organic photovoltaics and understanding how radiation can damage DNA.
Jungseog Kang
Jungseog Kang is an assistant professor of Biology at NYU Shanghai. Prior to joining NYU Shanghai, he was a research scientist at UT southwestern medical center. He holds a Ph.D. from UT Austin and a B.A. from KAIST in Korea.

Professor Kang’s research interests are chromosome segregation, mitosis, and antimitotic cancer drug screen. His works in these fields have appeared in Journal of Cell Biology, Journal of Biological Chemistry, PNAS, Molecular Cell, Cell, and others.

He studies how mitotic checkpoint pathway ensures faithful chromosome segregation in higher eukaryotes and tries to build quantitative models of mitotic process by which therapeutic intervention of cancers can be probed.
Leo Yeung
Leo Yeung is a Software Development Manager at eBay Inc in Shanghai and was previously a Software Development Engineer at Amazon in Vancouver in the Logistics department. He graduated with Honors from the University of New South Wales, Sydney with a degree in Computer Engineering. He is passionate about Computing in general and Algorithms in particular.
Technology/Visual Demonstration

Olivier-Gilles Marin
Olivier Marin is Associate Professor of Practice of Computer Science at NYU Shanghai. Marin received his PhD in Computer Science in 2003 from the Universite du Havre, France. He is currently an associate professor at University of Pierre and Marie Curie (University of Paris 6) in Paris, where he has taught for the past decade. Marin is an expert in Operating Systems.

His current research focuses on distributed middleware solutions for dependability in various environments: delay-tolerant networks, clouds, and P2P networks. My research interests include fault tolerance, recommendation systems, multi-agent systems, and distributed architectures for the management of Big Data.
Technology/Visual Demonstration

Eddie Wu
Eddie Wu, co-founder of One Step Ahead Education, a boutique educational consulting firm. Together with his partners at 1SA, Eddie helps students find the best of themselves in their pursuit of quality education overseas. Prior to 1SA, he worked at Shanghai Disney Resort, Deloitte Consulting and Shanghai Media Group. Eddie holds an MBA from NYU Stern School of Business and a BA in International Chinese Studies from East China Normal University.
Technology/Visual Demonstration

Wentao Chan
Wentao leads the Experience Design team across Greater China. He has 18 years digital experience, designing omni-channel content and commerce platforms from strategy, user experience & prototyping to launch across mobile, tablet, desktop and social media.

He is focused on crafting experiences that delights the end user, and has led engagements for clients in the automotive, retail, TMT, banking & insurance, sports & entertainment, travel and manufacturing sectors across Europe and APAC. Wentao has published in Harvard Business Review and won the Cannes Cyber Lions award for mobile.
Keynote Speaker

Maria Montoya

Maria Montoya is the Dean of Arts and Sciences at NYU Shanghai. As Dean, she is responsible for academic affairs, curriculum coordination, and intellectual development of the humanities, social sciences, and natural sciences.

Montoya also is Associate Professor of History at NYU, where she has served for several years as director of undergraduate studies, coordinating history courses across the University’s expansive global network and mentoring honors students in the Department of History at the New York City campus. She holds a PhD, an MA, and a BA from Yale University.

Montoya’s research interests are in the history of the American West, as well as in environmental, labor, and Latina/o history. Montoya is the lead author of the forthcoming US history textbook Global Americans. She is also the author of numerous articles as well as Translating Property: The Maxwell Land Grant and the Problem of Land in the American West.
Oral Presentations
by Major Honors Students
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<tr>
<th>Time</th>
<th>Presenter</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1:00-1:15</td>
<td>Yulanda Jun Cai</td>
<td>Security Transaction Tax And Its Impact On Trading Volume And Return Volatility: A Stock-Level Approach</td>
</tr>
<tr>
<td>1:15-1:30</td>
<td>Jessica Qinmei Chen</td>
<td>Interpreting The Relationship Between Implied And Historical Volatility Through Sentiment Analysis on Weibo</td>
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<tr>
<td>1:30-1:45</td>
<td>Dongning Fang</td>
<td>2015 Chinese Stock Movement: Bull &amp; Bear Market</td>
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<tr>
<td>1:45-2:00</td>
<td>Bingqing He</td>
<td>Empirical Analysis of SSE 180 Index Effect on the China's Stock Market</td>
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<td>10-Minute Break</td>
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<tr>
<td>2:25-2:40</td>
<td>Tianshu Lyu</td>
<td>On Performance and Persistence of Mutual Funds in China</td>
</tr>
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</table>
The paper studies how Stock Transaction Tax (STT) adjustment over the last sixteen years has affected the trading behavior in Chinese stock market. To study the issue, the paper focuses on STT’s short-term effects on Shanghai and Shenzhen A-Share indexes, as well as those on constituent stocks of SSE-180 Index. It aims to report empirical results regarding the behavior of market volume and return volatility before and after the adjustments, and whether the adjustments affect all stocks indiscriminately, following the statistical models proposed by Baltagi et al (2006). Ideally, the paper will lend support to a conclusion on whether STT in China is an effective policy tool, and will provide references for traders and policy makers.
Weibo posts collect countless investors’ opinions. These texts can extract more valuable information to forecast the gap between historical volatility and implied volatility when sentimental text analysis technics applied. In this research project, we collect the dataset by a crawler software (data pre-processing); we perform machine learning technics – sentimental text analysis – to extract the sentimental features from texts; we conduct Granger Causality Analysis—to predict the gap between historical volatility and historical volatility. Our project is aiming to develop sentiment analysis tools and correlate contributed content to predict the gap between historical volatility and implied volatility. We expect our study to show the potential that combining massive new data sources from Weibo posts offer a better understanding on the behavior of the gap between implied volatility and historical volatility in Chinese financial market.
In June 2015, there was a huge stock crash happened in China. The Shanghai index dropped from 2000 points. Since then, China has been suffering from a bear market. The current stock price (until December 2016) is still around 3200 points. However, before June 2015, China had experienced a bull market, which drove the stock price to 5000+ points. The stock crash started within just one month.

The volume has also changed pretty much. It is assumed that during bull market there will be more volume but less volume in bear market. However, reality always has a lot of random factors. For example, because of the involvement of the government policies, the volume change was abnormal during the stock crashes. In addition, people’s psychology and the social media could also make an influence. Therefore, the stock movement may not act as we expected. I would like to study the movements in Chinese stock market from 2014 -2016, which consists of two periods: a bull market, followed by a bear market.
Business

Empirical Analysis of SSE 180 Index Effect on the China’s Stock Market

STUDENT Bingqing He (Business & Finance)
MENTOR Jeffrey Wurgler
ROOM/TIME Room 209, 1:45 PM

In this research, I attempt to observe the Index Effect on the Shanghai Stock Exchange Composite Index 180 (SSE 180). Firstly, I am interested in the significance of SSE 180 Index Effect on the Chinese stock market. In other words, empirical analysis will be applied to find numerical evidence of price and/or volume changes and the recovery time. Secondly, I will place emphasis on the SSE 180 adjustment during stock market crashes, specifically in 2015. During the first half of 2015, the Shanghai Composite Index rose up from 2400 points till 5000 points. However, fortune waned in the speed of downslope of a roller coaster in July 2015. Thousands of dollars evaporated. On July 8th 2015, Shanghai Composite Index closes at 3507 points. Compared to the highest point of 5178 points on June 12th 2015, the Index slipped and lost more than 30%. For such a volatile period, I would like to investigate the correlation between the Index Effect significance with the macro-environment of the index. Thirdly, I will compare the intensity of index effect on SSE 180 with it on S&P 500. Based on the comparison, I would like to observe how the arbitrage opportunities are enlarged or reduced in the Chinese stock market. In Mainland China, retail investors have more impacts on the stock market. Different from mature markets, the Chinese market participants heavily consist of retail investors.

STUDENT  Sophie Shuang Hu (Business & Finance)
MENTOR  Robert F. Whitelaw
ROOM/TIME  Room 209, 2:00 PM

The research plans to investigate the interactions between RMB exchange rates and stock prices in Chinese financial market. The motivation is to establish the causal linkages between Chinese foreign exchange market and stock market against China’s unique backgrounds: 1) China has only one currency but has CNY traded in Mainland and CNH traded in Hong Kong; 2) the spread between CNY and CNH provides potential arbitrage opportunities for equity investors; 3) China is making ongoing attempts to develop stock market with policy shift to RMB internalization, Shanghai-Hong Kong stock connect, etc. Some econometric techniques such as Granger Causality Test are applied to vector autoregressive (VAR) models using high-frequency daily observations on Shanghai Composite Index and CNY, CNH as well as the CNH-CNY spread over January 1, 2005 to September 22, 2016. This current proposal will identify three major parts about the progress: 1) outlining the statistical overview about China’s stock market and foreign exchange market; 2) verifying the underlying causality between RMB exchange rates and stock price movements in the same time period; 3) reflecting the progress/challenges and clarifying the plan of next steps in the following time.
Mutual funds in China is a very young market. The first mutual fund in China came out in 1991, but it was not until the beginning of 21st century that the whole market began to burgeon with much more number of funds and an increasing Asset Under Management amount. On the other hand, there are not many existing systematic researches on historical trends of mutual funds in China. Given this situation, this research serves as the first vigorous Chinese mutual fund market analysis in Western Literature. It aims at finding a proper way to evaluate the performance trend and its persistence throughout time, and how the internal investment strategies affect the performance, which is also followed by finding what factors affect their future performance directly.
This paper intends to construct a semi-annual hedonic price index of Chinese contemporary art and to investigate the price determinants and investment performance of Chinese contemporary art.

Chinese contemporary art market has experienced extraordinary growth and has caught lots of attention from investors in the past two decades. However, relatively few studies about Chinese contemporary art as an investment have been conducted. Also, while Artron, China’s first and most comprehensive database for art market has constructed a few widely-used price index for Chinese art market, those indexes have remarkable drawbacks, and none is developed using hedonic regression method, one of the most popular and effective methodology in making art price indices. So this paper intends to fill the gap.

I will construct a hedonic art price index that traces the price performance of Chinese contemporary art and then apply the resulting index to evaluate the return and risk of art investment in this market. The evaluation will be conducted by comparing the return and risk characteristics of Chinese contemporary art with those traditional financial instruments, including stock and bond.
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<tr>
<td>1:00-1:15</td>
<td>Sydney Bender</td>
<td>Sudanese is Synonymous With... The Conception of Sudanese Identity in Leila Aboulela’s Novels</td>
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<tr>
<td>1:15-1:30</td>
<td>Jenny Xi Chen</td>
<td>Converging Public and Private Sphere, Diverging Discursive Space: Changing Discourse on One Child Policy, 1978 - 2015</td>
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<tr>
<td>1:30-1:45</td>
<td>Ng Meizhi</td>
<td>The Development of the Reichswehr as a State Within a State in Germany’s Weimar Republic</td>
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<tr>
<td>1:45-2:00</td>
<td>Roman Ziqing Chen</td>
<td>A Comparative Study of Lesbian, Gay, Bisexual, and Transgender (LGBT) Student Organizations in Shanghai and Taipei</td>
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<td>10-Minute Break</td>
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<tr>
<td>2:10-2:25</td>
<td>Noel Konagai</td>
<td>Data-Driven Analysis of Self-Censorship Patterns on Weibo</td>
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<tr>
<td>2:25-2:40</td>
<td>Ravneet Dehal</td>
<td>Changing the Face of Power: Women’s Political Representation in the Middle East</td>
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<tr>
<td>2:40-2:55</td>
<td>Shayla Schlossenberg</td>
<td>Space, Care, and Funds: The Spectrum of Accommodation for Stakeholders of a Shanghai NGO</td>
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This essay analyses how Sudanese identity is represented and constructed in Leila Aboulela’s novels, *The Translator, Minaret, and Lyrics Alley*. Bender determines that five aspects influence identification as Sudanese: (1) geographic location, (2) language, (3) race, (4) ideology/religion and (5) tradition. Upon examining Aboulela’s use of these factors to imagine Sudanese identity, Bender finds that Aboulela’s mode of identification aligns with nationalism. With this method, Aboulela creates a commodious vision of Sudanese identity that permits the inclusion of Sudan’s many diverse peoples.
This study examines the emergence and evolvement of the social debate on one child policy in mass media since its introduction in 1979. Through an intensive examination of mass media publications and more recent Internet contents, this project attempts to document the continuity and changes within a still ongoing debate, in which a powerful state actor and an ever growing and diversifying public came into interaction over a controversy that concurred with changes of socioeconomic conditions as well as forms of media usage. Close examination reveals that the trajectory of the debate included four stages: from 1979 to mid 1980s, there was a vacuum of public opinions on the policy; from mid 1980s to late 1990s, oppositions and criticism within the intellectual community began to take shape on some publications; from the late 1990s to 2007, the early days of Internet use in China witnessed the pluralization of the discourse featuring more in-depth and confrontational discussion of whether the policy needed to be abandoned; from 2007 to 2010, the intellectual community faced a diversification of opinions, with major demographers beginning to call for the termination of the policy while grass root participation online, especially those against the policy gained momentum; from 2010 onwards, female voices in support of the policy began to circulate on social media while anti-one child policy grass root voices took a more organized form enough to cause the authorities to react with censorship.
This study focuses on development of the Reichswehr as a state institution in the early Weimar Republic, arguing that the reconstruction of the army was posed as the solution to the challenges of Germany’s cohesion and reconstruction postwar. The period between 1920 to 1926 is a crucial time for the reconstruction of Germany. The revolution, the restrictions of the Versailles Treaty, the threat of military uprising threatened to destabilise the Weimar Republic in its early years. Hans von Seeckt recognised the Reichswehr as the answer to their shared troubles. As the Chef der Heeresleitung (Chief of the Army Command), General Hans von Seeckt aimed to develop the Reichswehr as a unified, autonomous and neutral state instrument. He accomplished this by continuing the traditions and spirit of the Imperial Army and maintaining the unity of the new Reichswehr. He was largely successful in building up the army of 100,000 men into an army of leaders. The army was to work towards the interests of the German Empire as the permanent State and not to the Weimar Republic, a temporal form of state. This distinction allowed Seeckt and the army to work above party politics and define the interests of the Empire as according to their own interests. The army was also an embodiment of national spirit which served to unite and to prepare the nation for a future, inevitable war. The result was a Reichswehr that became a ‘a state within a state’. This development of the Reichswehr was only possible because of the weakened democratic state and the lack of alternative military units in 1920 to 1926. This consolidation period of Weimar Republic highlights the development of the Reichswehr in response to the changing circumstances and traumatic experiences with the war, the Versailles Treaty and Kapp Putsch.
A Comparative Study of Lesbian, Gay, Bisexual, and Transgender (LGBT) Student Organizations in Shanghai and Taipei

STUDENT  Roman Ziqing Chen (Gender Politics)
MENTOR  Celina Hung
ROOM/TIME  Room 210, 1:45 PM

Although there is extensive literature on queer activism in Taiwan, little is known about LGBT grassroots groups in mainland China. In addition, university students, despite being important participants of social movements, are not well understood in terms of their organization of internal LGBT communities. This study looks into how LGBT student groups are organized across the strait through qualitative interviews with over 40 student leaders of LGBT groups who are now attending universities in Shanghai and Taipei. The aspects explored are how these groups utilize resources to pursue their missions, the environment where they conduct activities, challenges coming from peers, university administration and outside political groups, their inter-university network, as well as their implications to the growth of local LGBT activism. By juxtaposing the experiences of LGBT student activists in two cities that are respectively the biggest in mainland China and Taiwan, this study aims to illustrate not only the different political climates in which civil society operates but also the similar challenges student groups across the strait face when promoting community building among sexual minorities and educating the public. This study is part of a growing body of research on LGBT activism in Sinophone world. In using a largely untapped source of LGBT student activism accounts in Shanghai and Taipei, this study will lay the foundation for future research around similar topics.
Self-Designed Honors Major

Data-Driven Analysis of Self-Censorship Patterns on Weibo

STUDENT  Noel Konagai (Self-Designed Honors Major)
MENTOR  Pierre Landry, Lena Scheen, Almaz Zelleke
ROOM/TIME  Room 210, 2:00 PM

Given China’s increasing number of netizens, research attempting to understand the Chinese internet censorship emerged. Engaging with some of the emergent theories, such as state critique theory, this research focuses on what is the content and how it is censored on Weibo. Using a time-series data scraped from GreatFire.org about the state of censorship for a given keyword, this research focuses on how censorship on Weibo changed over the time period of nearly six years. Many might think that the Chinese internet is a highly under control and sensitive content cannot escape to the public. Nonetheless, as this research demonstrates that Sina Weibo, a privately owned company, has different stakes and considerations than the body of policy makers who create the guidelines for censorship.
Mao Zedong famously said “women hold up half the sky” to promote the equality of women under his plan to radically restructure Chinese society. Yet today, although women are represented in greater numbers than ever before in the work force, in academia and in political and social activism, their interests and voices are still vastly underrepresented and undervalued. Women still make up a disproportionate share of the illiterate, the poor, the displaced, the underpaid and underrepresented. My project aims to explore some of dominant theories explaining why women are so underrepresented in one particular realm: governmental legislatures. Women’s underrepresentation in this area leads to their inability to effectively impact other issues of public life which affect them such as equal pay and parental leave. I aim to explore these theories of female political representation in the context of Middle East, which is understudied and has, on average, the lowest levels of female representation in the world. My project provides an overview of the Middle East in general, with an in depth look at 8 case study countries. Through this process I will determine whether the theories I outline have explanatory power for women’s representation in the case study countries. I will look at the impact of factors such as: regime transition type, oil, electoral systems, political party gatekeeping, quotas, constitutions and religion in order to draw my conclusions.
Space, Care, and Funds: The Spectrum of Accommodation for Stakeholders of a Shanghai NGO

STUDENT Shayla Schlossenberg (Social Science)
MENTOR Todd Meyers
ROOM/TIME Room 210, 2:30 PM

“Space, Care, and Funds: The Spectrum of Accommodation for Stakeholders of a Shanghai NGO” unpacks how a social service is rendered in China through the daily practices of one outreach center in Shanghai. This project focuses on how relationships with clients, international partners, and the state are formed and how this comes to bear on program development. The study takes the form of an oral history of Shanghai Commercial Sex Worker and Men Who Have Sex With Men Center (SCMC) [上海心生], made through interviews with Tony Zheng [郑煌], the founder and current director of SCMC, and participant observation of the SCMC center. The investigation finds that considerations of partners of the center are complex, as the organization must figure out where to come into contact with possible partners and clients, how to create a particular relationship to suit the needs of that partner, and how to sustain that relationship in order to sustain the organization.
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<td>Ann Fan Yang</td>
<td>The Lung Microbiome in Asthma Patients: A Re-Investigation with Persistent Gene Filtering</td>
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<td>1:15 PM</td>
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<td>Autumn Yanqiu Wu</td>
<td>Taking the Pulse of US College Campuses with Location-Based Anonymous Mobile Apps</td>
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Horizontal gene transfer—the movement of genetic material between organisms—is a common phenomenon among prokaryotes, and genes coding for essential products and processes tend to persist throughout time and species. This cluster of persistent genes may be obscuring meaningful functional analysis of the microbiome by creating a database bias towards these overabundant genes. This study looks to reinvestigate of microbiome composition of asthma patients by filtering bacterial evolutionary persistent genes.
Portfolio Online Evolution in StarCraft

**STUDENT** Che Wang (Computer Science)
**MENTOR** Julian Togelius
**ROOM/TIME** Room 211, 1:15 PM

Published in October 2016 on the 12th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE’16), Portfolio Online Evolution is a novel method for playing real-time strategy games through evolutionary search in the space of assignments of scripts to individual game units. This method builds on and recombines two recently devised methods for playing multi-action games: (1) Portfolio Greedy Search, which searches in the space of heuristics assigned to units rather than in the space of actions, and (2) Online Evolution, which uses evolution rather than tree search to effectively play games where multiple actions per turn lead to enormous branching factors. The combination of both ideas leads to the use of evolution to search the space of which script/heuristic is assigned to which unit. In this paper, we introduce the ideas of Portfolio Online Evolution and apply it to StarCraft micro, or individual battles. It is shown to outperform all other tested methods in battles of moderate to large size.
Taking the Pulse of US College Campuses with Location-Based Anonymous Mobile Apps

STUDENT Autumn Yanqiu Wu (Computer Science)
MENTOR Keith W. Ross
ROOM/TIME Room 211, 1:30 PM

We deploy GPS hacking in conjunction with location-based mobile apps to passively survey users in targeted geographical regions. Specifically, we investigate surveying students at different college campuses with Yik Yak, an anonymous mobile app that is popular on US college campuses. In addition to being campus-centric, Yik Yak’s anonymity allows students to express themselves candidly without self-censorship.

We collect nearly 1.6 million Yik Yak messages (“yaks”) from a diverse set of 45 college campuses in the United States. We use natural language processing to determine the sentiment (positive, negative, or neutral) of all of the yaks. We employ supervised machine learning to predict the gender of the authors of the yaks, and then analyze how sentiment differs among the two genders on college campuses. We also use supervised machine learning to classify all the yaks into nine topics, and then investigate which topics are most popular throughout the US, and how topic popularity varies on the different campuses. The results in this paper provide significant insight into how campus culture and student’s thinking varies among US colleges and universities.
Poster Presentations
1-3 PM, 3rd Floor Corridors
Detecting the Informativeness and Causality Relationship of Shanghai Hong Kong Cross-listing Stocks by Using the Online Word Searching Frequency

**STUDENT** Siyao Fang (Computer Science)
Danmeng Zheng (Business & Finance)

**PROJECT TYPE** DURF

**MENTOR** Yuxin Chen

On November 17, 2014, Shanghai-Hong Kong stock connect has officially been launched, which further interconnects mainland and Hong Kong stock markets. Among those specified shares traded through SH-HK stock connect, there are 65 companies that were listed both on SSE and HKEx. Technically, the price spread of these 65 shares ought to be relatively fixed in the isolated mainland and HK market. But in reality, the financial market is not efficient. The investors from the two markets have valuation gaps, so the dual prices floats. One chance of arbitrage emerges with the trend of narrowing price spread between SSE and HKEx (buy low, sell high). But it’s rather challenging to find an efficient tool to foresee the directional trend of price difference.

We decide to use the power of online information to find the arbitrage opportunity. The Chinese investors read online news, consult online sources for market analysis and discuss investment decisions on forum very frequently. Since the Internet contains too much information, we hypnotize that the frequency of words mentioned could affect investors’ valuation and predict stock price spread of SH-HK stocks. We use quantitative calculations to test this hypothesis in our research in order to see if some specific online word frequencies could exploit the arbitrage opportunity.
ETA Bikes

STUDENT  Maximilian Reiff (Business & Finance), Julie Hauge (Business & Finance)
PROJECT TYPE  Independent Study
MENTOR  Rodrigo Zeidan

The creation of a company that offers a fleet of bikes scattered around the city that can be used by anyone who has the app, a small deposit, and sufficient money in their account: scan the QR code on the bike to unlock it and ride for as long as you want. You are charged based on time, and when you’re done with the ride, lock the bike to end your trip. No need to return the bike to a specific location, just put it down anywhere and it’ll be picked up by the next rider! All our bikes are GPS tracked so we can see where each one is and in their app, users can see the location of all available bikes; happy riding!
Intraday Price Discovery in CSI 300 Stock Index and The CSI 300 Index Futures Market

STUDENT Katarzyna Olszewska (Economics), Kangni Yu (Business & Finance), Jiachen Gong (Mathematics)

PROJECT TYPE Other Research Project

MENTOR Xin Zhou

52 trading days after the CS1 300 stock index futures was launched on April 6th 2010, CSI 300 stock index experienced a sharp decline of 24%. Many researchers have been investigating whether the introduction of the Chinese futures market increases or reduces the volatility in the underlying stock index market. Research has provided strong evidence in favor of two-way volatility transmission between the Chinese stock index market and the stock index futures market. Many studies also found that the cash market lead the futures market in transmitting long-run information, and the cash market dominated the futures market in price discovery during the first three months after the introduction of the futures market. This might be due to the high barriers to entry and speculative activities in the Chinese futures market in its early stage. As the barriers to entry became lower, along with the control on over-speculation by CFFEX, it is interesting to revisit the issues with the most current data. This study will first test whether the price discovery function of Chinese futures market improved over the past 7 years. Then, this study will investigate volatility transmission between the Chinese stock index and the stock index futures market through analyzing both most updated high-frequency data and complete daily data.
The Capital Asset Pricing Model (CAPM) is one of the most well-known pricing models. The CAPM is designed to estimate the rate of return of an asset based on its un-diversifiable risk.

In 1972, Black, Jensen, and Scholes published their empirical test result of the CAPM for the U.S. Stock market. Their research reveals a pattern in which the CAPM misprices the stock price. This pattern is known as “a flatter Security Market Line (SML)” phenomenon. In 2014, this pattern was reinterpreted and extended by Frazzini and Pedersen in their research paper “Betting Against Beta”.

However, most of the researchers study the U.S stock market or other mature international financial markets, and the flatness of the SML has rarely been specifically tested in the Chinese market. Given China’s increasingly important impact on the world economy and China’s stock market’s potential critical role in acting as a mechanism for capital allocation, a sophisticated understanding of the stock pricing in the China’s stock market is therefore of great importance. This research intends to conduct an empirical test of the CAPM for China’s stock market using both time series regression and cross-sectional regression.
Commercial banks in China face strict regulations on the capital requirements and deposit rate from the central bank PBOC and China Banking Regulatory Commission. As a result, the banks have significantly increased their offbalance sheet activities, mainly through issuing Wealth Management Products. However, this “regulatory arbitrage” contains substantial rollover risk when huge volume of WMPs mature. We are interested in examining whether the market can recognize the risk and if so, how does it react.

We investigated the scale of Wealth Management Products in China, analyzed the trend of annualized yields as well as the issuer’s stock price sensitivity to the level of shadow banking activity. We find that (1) the excess weekly stock return is lower issuing banks with the more WMPs issued; (2) the negative impact of WMPs Issuance over excess stock return is more prominent for those small and medium-sized banks; (3) and under bad liquidity condition, banks would raise liquidity through issuing more WMPs. Overall, the market is reacting to the issuance of WMPs, but no attention appears to be paid on matured WMPs.
Economics

The Relationship Between Migration of Skilled Workers from Spain to Shanghai and the 2008-13 Great Spanish Recession

STUDENT José Antonio Cabrera Sanchez (Economics)
PROJECT TYPE Independent Study
MENTOR Pei Gao

Due to my interest in Immigration and Labor Economics, during the Fall of 2016, I requested permission to conduct a 2-credit Independent Study with Economics Professor Pei Gao. My ultimate goal is to write a comprehensive research project through which I plan to study the ever-growing migration of Spanish people into Shanghai. The project aims at identifying the economic variables and factors inciting migration, including but not limited to salaries, education levels and ages, through the establishment of an econometrics model in the field of Immigration and Labor Economics.
The Impact Of Previous International Roommate Experience On The Attitude And Preference Changes In Intercultural Communications

STUDENT Nancy Yuqian Gong (Economics), Inez Yuxin Tong (Economics)

PROJECT TYPE DURF
MENTOR Steven Lehrer

Neoclassical economic theory predicts attitudes and preferences fixed throughout life. Recent evidence from animal studies in psychology and neuroscience suggests that many of these factors vary across time in response to these changes in the environment. This research seeks to evaluate if exogenous shocks to one’s environment influence the development of attitude and preference changes in undergraduate students. Specifically, we explore the random assignment of roommate at NYU Shanghai.

In this DURF project, we will carefully design two surveys to obtain both the attitude and preference changes in intercultural communications and the potential factors.
Global China Studies

China’s Queer Political Economy of Migration: A preliminary study on the intersection of migration, sexuality, and space in contemporary China

STUDENT Hunter Jarvis (Global China Studies)
PROJECT TYPE Independent Study
MENTOR Qingwen Xu

This project emulates Lionel Cantú’s Sexuality of Migration: Border Crossings and Mexican Immigrant Men by examining the ways in which sexuality influences the processes of migration and identity formation for LGBTQ individuals of Chinese origin. In Cantú's book and in this study the central argument is that “sexuality shapes and organizes processes of migration and modes of incorporation.” Methodologically, this study is grounded in the use of ethnographic methods, semi-structured and informal interviews, archival data, and participant observation to further its aim of understanding Chinese migration as a function of sexuality. To pursue a more comprehensive understanding of queer migration in China, this study regards differences in class, race, and gender identity as key analytical components without which a deeper understanding of queer migratory patterns cannot be achieved. These components might be best observed through the ways in which queer migrants utilize and experience space within their place of residence as compared to their place of origin.
Geosocial networking smartphone applications are becoming increasingly popular among men who have sex with men (MSM) permitting users to conveniently find others based on proximity and location. In societies like China where homosexuality remains taboo, dating applications offer MSM a convenient way to meet sexual partners; however, the ease of meeting new sexual partners facilitates increased sexual interactions among MSM placing users at a greater risk for contracting HIV and sexually transmitted infections (STI). The aim of this study is to characterize MSM smartphone application users in Shanghai, China and identifying risk factors for HIV and STIs infection. Advertising on widely used mobile dating application were utilized to direct users to an online survey that assessed socio-demographics, sexual behaviors and potential HIV and STIs factors. Findings from this research have the potential to inform policy makers and HIV prevention organizations on how to reach at risk MSM via smartphone applications and provide intervention strategies.
In our modern times people frequently learn about news and events through social media platforms. Since these sites can be considered to be among the most convenient and accessible ways of obtaining and sharing information, individual accounts create a network that allows for that spread of information.

Our group was interested to learn about ways in which Twitter and Vkontakte compare to each other when it comes to pattern of news sharing in response to massive media events such as presidential debates, soccer games or international tragedies. While both of these sites can be considered to be immensely popular, Twitter is predominantly used in the United States, whereas VKontakte (VK) is the main platform of social media for Russia and many russophones.

Our project was motivated by the fact that so far, there has been very little research done about VK audiences that would enable a meaningful and accurate analysis of Russian society. Most of the academic approaches focus solely on information obtained from American websites that attract audiences that are in no way representative of the entire population in Russia. And even though obviously VK will probably share some of those problems, as the most popular Russian website it should still provide information that would be much more relevant.
Chemistry

Formation of 8-Oxo-7,8-dihydroguanine in Human Telomere G-Quadruplexes Initiated by One-Electron Oxidation of Guanine Bases

STUDENT Tomasz Jakub Merta (Neural Science)
PROJECT TYPE DURF
MENTOR Vladimir Shafirovich, Nicholas Geacintov

In chromosome the ends of DNA are protected from degradation by telomeres, which consist of multiple repeats of 5’-(TTAGGG)n-3’ sequence. The first 5000-15000 bases of this sequence are paired with the complementary strand, while the remaining 50-200 nucleotides are single stranded. The single stranded part of the telomeric repeat folds into a structure known as G-quadruplex. In this structure, four guanine bases arrange in a square plane through Hoogsteen H-bonding forming a G-tetrad, which can stack on top of each other in the presence of an appropriate metal cation. The Na\(^+\) and K\(^+\) stabilize the G-quadruplex by being placed in a channel between each pair of G-tetrads. G-quadruplexes display different structures depending on a solution composition: basket fold in sodium salt solutions, and hybrid folds in potassium salts solutions.

Telomere length is related to cell’s aging and mortality. It has been found that oxidative and inflammatory stresses are correlated with telomere shortening and persistent DNA damage response. The study aimed to monitor the kinetics of guanine radicals decay created by sulfate radicals. Another goal of the study was to measure the yield of 8-oxoG lesions with the use of High Performance Liquid Chromatography method of analysis. The results showed a similar kinetics decay of guanine radicals as previously seen in duplex DNA. However, the ratio of 8oxoG lesions in g-quadruplexes seems to be lower than in duplex DNA.
Raspberry Pi is a small single-board computer. As with all other computers, it needs an Operating System on which all other user-space applications could run on. There are numerous existing OSes for Raspberry Pi, of which the most common ones are: Raspbian, RISC OS, LibreELEC, etc. These OSes work pretty well but most of them adopting the Linux kernel, which is quite large and thus make themselves less attractive for a beginner to understand “ABC” of an OS. Thus, a simpler OS design is desired for hobbyist and for educational purposes.

The purpose of this project is to implement an Operating System that runs on the Raspberry Pi 2 Model B with an ARMv7 CPU core. With the aim of:

- Familiarizing myself with how OS works bottom up
- Bare metal programming on real hardware
- Implementing important OS structures
- Touching hardware and having fun
Distributing A Simulation of Ferroelectric Polycrystalline Ceramics

STUDENT Cameron Ballard (Computer Science), Carson Nemelka (Computer Science)
PROJECT TYPE Capstone Project
MENTOR Olivier Marin, Romain Corcolle

We attempted to deploy a distributed simulation of ferroelectric ceramic polycrystals to increase performance and scalability. The combined properties of memory, piezoelectricity, and pyroelectricity make ferroelectric materials uniquely useful across various fields and applications. The coupling effect between electric field and stress is of particular interest, making them useful in sensors and actuators. Considerable research has been directed towards designing an accurate simulation for the behavior of Ferroelectric materials, which has resulted in a variety of models that simulate behavior at a macroscopic scale. However, classical models are insufficient to simulate ferroelectric materials from the crystalline scale. Instead, multiscale models can accurately predict the behavior of a material based on its crystalline structure. Unfortunately, these models use a non-linear iterative approach and have an extremely high computational cost.
Representative of Environment with Collection of Data from Laser Range Finder

STUDENT  Kinsa Durst (Computer Science)
PROJECT TYPE  Capstone Project
MENTOR  Olivier Marin

Autonomous robots have many uses, ranging from transporting people to exploring areas that are inaccessible to humans. For these robots to navigate on their own without human interference, they need to be able to observe their environment, make sense of it (mapping), and know where it is (localizing). There are many ways to implement this, and methods also vary depending on environment and hardware. I worked with electrical engineering students to provide a software that maps the environment for their mini autonomous car.

We use RP Lidar for scanning of the environment. It is a laser range-finder that spins in 360 degrees, detecting objects by measuring the laser that bounces back. We chose this because it performs reliable scans—simple data of degree and distance of object—while being light and affordable. My job was to use this data to display a 2D representation of obstacles around the lidar onto the computer screen.
With the rapid development of portable electrocardiogram (ECG) monitors, a huge amount of high-quality ECG data have been collected every day in real-time, leaving doctors a much heavier workload to read the ECG diagrams for making a diagnosis. By observing the classification result of a series of consecutive heartbeats and their order, doctors can better know the rhyme of the signal and then detect an arrhythmia. However, the present classification algorithms and methods based on ECG morphology, heartbeat intervals, and RR-intervals still has accuracy gap to industry production. A system with manual correction is desired for the current ECG classification analysis. Therefore, we propose ECGLens, as the first attempt to interactively interpret and improve the heartbeat classification results and support arrhythmia identification with visualization techniques. ECGLens provides visual analytic approaches to (1) explanation of the heartbeat classification with ECG and horizon graph, (2) auto detection and ranking of outliers in the classification results for doctors to investigate and make adjustments. (3) showing an event sequence of heartbeats based on the adjusted classification results for arrhythmia detection. Our system is designed together with domain experts and evaluated by doctors.
One of the main responsibilities of Human Resources (HR) is the task of screening candidates for a certain job. Nowadays, automated hiring systems have been widely used by the HR. However, in most of the computerized hiring systems, the personality traits and the emotion process of job candidates as an important factor of consideration in recruitment are overlooked and rarely well analyzed. Therefore, the project presents a conversational chatbot called HireBot by utilizing the technology of facial image processing and emotion detection. The goal of the chatbot is to output a well-rounded evaluation of job candidates’ personality traits and emotion process.
Computer Science

CapChat: A Decentralized And Secure Messaging Platform Backed by Blockchain Technologies

**STUDENT** Kelvin Liu (Computer Science)
**PROJECT TYPE** Capstone Project
**MENTOR** Olivier Marin

Internet and online privacy rights are on the decline. Governments, internet service providers (ISPs), and large-scale organizations leverage the centralized nature of the internet in order to collect massive amounts of user data and control the flow of information. Online activity is widely monitored, resulting in violations of privacy — a fundamental human right. These violations necessarily hurt the user. ISPs and organizations may sell user data to third parties. Furthermore, intrusive government surveillance programs have been known to eavesdrop and intercept messages between communicating parties.

Fortunately, encryption is a powerful tool that can be used to preserve online privacy. When used correctly, it ensures that only the intended recipients of a message are able to read it. In addition, end-to-end encryption (E2EE) is a method in which messages are encrypted before transport. Thus, even when a third party successfully intercepts a message, the contents are unreadable. Many popular messaging platforms support E2EE: Facebook’s secret messages, Google Allo, iMessage, WhatsApp, etc.

Still, these platforms are far from perfect because they exist as centralized services. Users are implicitly forced to trust that proper security measures have been taken on the platforms’ intermediary servers. Furthermore, these servers form a single point of failure, allowing governments or ISPs to completely block and censor the service and by extension, any and all communication. These issues can be mitigated by adopting a decentralized approach; this architecture not only allows users to operate with minimal trust, but also eliminates the possibility of a single point of failure. Given the current state of online surveillance and censorship, a decentralized and secure messaging platform is not only desirable, but also very necessary.
Multi-Agent Deep Reinforcement Learning Algorithms

**STUDENT**  Kenny Song (Computer Science)
**PROJECT TYPE**  Capstone Project
**MENTOR**  Keith Ross

Deep reinforcement learning (DRL) combines RL algorithms with deep neural networks as function approximators. Impressive progress has been made in the recent few years, such as beating Atari video games or Go grandmasters.

Most current research focuses on single-agent tasks, e.g. single player games such as Pacman. However, these RL algorithms scale poorly to high-dimensional action spaces; for n agents, each with m actions denoted as one-hot vectors, the action space is \{0, 1\}^{mn}. Learning structure in this action space can lead to optimal coordinated action between agents.

We explored two multi-agent algorithms that are more efficient than traditional approaches:
1) Policy gradient with an LSTM policy net and MLP value net baseline
2) SARSA with an LSTM-MLP Q-function
Networking analysis from massive data is very popular, especially with data visualization. For example, users can use their LinkedIn or Facebook profile to draw a map of their personal network. However, if the data is not so clean, i.e. not unified structure of data, and if it is hard to define features, analyzing the network would be more difficult. Now, we have some historical documents scanned from PDFs and converted to ‘.txt’ files with some OCR software. We want to fix some errors from OCR, build a ‘local’ social network and explore the network pattern to find out if some specific feature contributes to a specific result. The documents, in the format of pure texts, contain names, genders, titles, organizations, and dates (some or which are missing) in sentences. One interesting question to ask here is that within a time period in history, one person may get promoted or leave an organization temporarily. Naturally, it is reasonable to think that the person gets promotion or move because he knows someone. There are two main problems accordingly. Firstly, we need to extract useful information from natural language and to store the result into a database. The second question is how to identify some groups of social networks to find useful patterns to interpret the reasons to one’s promotion.
Investigation of Invasion Percolation Behavior in Three-Dimensional Space

**STUDENT** Hong-Bin Chen (Honors Mathematics), Lily Wang (Honors Mathematics)

**PROJECT TYPE** DURF

**MENTOR** Charles M. Newman

Percolation theory has been studied rigorously since 1950s. Among many topics, Bernoulli percolation receives close investigation with many results regarding the behavior of the percolation proved. One important function is $\theta_d(p)$ where $d$ indicates the dimension and $p$ is the parameter describing the probability of an edge being open in the graph. $\theta_d(p)$ denotes the probability of the origin being connected to the infinity with a series of open edges. Clearly when dimension $d$ is fixed, $\theta_d(p)$ varies according to $p$. It is both observed numerically and proven theoretically that $\theta_d(p)$ is increasing with respect to $p$ and that there is a value of $p$ called critical value or threshold at which, intuitively speaking, $\theta_d(p)$’s value changes from 0 to positive. We are interested in the behavior of $\theta_d(p)$ at the critical value of $p$.

Whether the transition is continuous or a discontinuous jump? It has been proven that it is the former case for $d = 2$ and $d \geq 19$, but not for the values in between. This project focuses on the behavior for $d = 3$ and studies a different but related mode of percolation called invasion percolation.
Major Depressive Disorder (MDD) is a psychiatric disorder that is becoming the leading contributor to the global burden of diseases according to the World Health Organization. The success of deep brain stimulation, a recent technique being developed to alleviate depressive symptoms, implies that depression is a neural circuit disorder. This study aims to explore the neural circuitry underlying depressive-like behaviours, specifically through looking at the interactions between the lateral habenula (LHb), the ventral tegmental area (VTA), and the medial prefrontal cortex (mPFC) in the human brain. The results show that optogenetic induction of phasic, but not tonic, firing in VTA dopamine neurons of mice undergoing a sub-threshold social-defeat paradigm rapidly induced a susceptible phenotype as measured by social avoidance and decreased sucrose preference. Phasic activation of VT neurons projecting to the nucleus accumbens (NAc) but not to the medial prefrontal cortex (mPFC) induced susceptibility to social-defeat stress. Moreover, optogenetic inhibition of the VTA-NAc projection induced resilience, while inhibition of the VTA-mPFC promoted susceptibility to depressive like behaviour.
Duan et al. conducted experiments on rats to perform “pro-anti orienting” task, which requires rats to orient to the left or right according to “Pro” or “Anti” rule. They observed “switch cost” that the subjects are more error prone on the first trial after switching orienting rule, which is also observed in humans in similar experiments. In particular, they observed asymmetric switch cost between switches from Pro rule blocks to Anti blocks and from Anti blocks to Pro blocks. Duan et al. summarized that two major theories about the switch cost. (1) Setting up the new task set requires resources and can only be fully achieved after the arrival of the sensory stimulus in the new task block. (2) The switch cost is mostly due to a temporal carryover of the previous task set.

This project uses Recurrent Neural Networks (RNN) to understand the network mechanism under switch cost. I built “Virtual Rat” agents with Minpy implementation using both supervised learning and reinforcement learning. I observed switch cost not only from the networks trained by real inputs with real rats’ responses but also from the networks trained by simulated inputs with the corresponding ground truth responses. Furthermore, I successfully manipulated the training process by resetting activations of the network at certain points to control the asymmetry of the switch cost, which preliminarily shows the switch cost is caused by limited training on switches.
Delay discounting behavior (e.g. $100 today or $110 tomorrow) in both difference tasks humans and animals has been widely studied by economists, psychologists and neuroscientists. However, there is a large gap between the methods used to study this behavior in animals and those used in humans.

In animal studies, the subject is usually given a large reward and a small reward, and after each time the subject chooses the large reward, the delay (usually < 1 min) for that reward increases. At some point the subject will switch to the small reward. This point is taken as a measure of the subject’s rate at which they discount delayed rewards or “discount factor-k“. In human studies, subjects are often asked questions like “Would you rather have $10 today or $15 in one month?”, and each subject’s discount factor can be estimated according to their choices.

Thus, there are two substantial gaps between animal and human methods of estimating discount factors: short vs. long times and non-verbal or “experiential” vs. verbal choice description.

We aimed to bridge the gap between human and animal temporal discounting research by measuring the discount factors of human subjects in three ways: 1) Nonverbal, 2) Short Verbal, and 3) Long Verbal, which will be explained in detail in the Methods section. This design allowed us to test whether a single process (discount factor-k) was used for delay discounting regardless of timehorizons or verbal vs. experiential situations.
Recently, rodents (both mice and rats) are developed as models for decision-making (Erlich et al., 2011; Harvey et al., 2012). Rodents’ smaller size and rapid breeding cycle make them cheaper as study subjects compared to monkeys. Rodent subjects allow more experiments and easily provide more data. The availability of genetic tools also adds to the advantages of rodent subjects. Although there are also limitations that there are substantial differences between rodent and primate brains, rodent subjects are overall good candidate subjects to work with.

In our lab we take nose pokes as the rodents’ choices and water as reward. We are restricting the animals’ access to drinking water, gradually decreasing from 12 hrs per day to 2, which will be the training/testing period. Controlled water access was strictly under the IACUC regulations and would cause no harm to the animals.

We already established two different training protocols: Operant and FreeForced. Operant protocol teaches the animal to trace the LED signal to collect rewards and the learning process went from one signal to three signals. FreeForced protocol involves a more advanced stage where the animal has to get the optimal route poking all three ports in each single trial. Our current data shows that the animals are learning the task well with a reducing reaction time to the optimal choice.

Future studies will investigate the effect of stress on decision-making in rodents.
Technology & Visual Demonstrations
This project will be focusing on designing a building automation - turning the Electrical Engineering Lab into a “smart room”.

Our two big areas of testing will be: User Experience, and Energy Efficiency.

NYU Shanghai Academic Building currently consists of manual functions for lights. We will be implementing a design that will cater specifically to the classroom users to make automated lights. This will be conducted using a Programmable Logic Controller (PLC), on which it is possible to design a system specific to each room. The basic functions we want the room to recognize is the amount of people in the, and where the people using the room are. This will determine which lights ballasts would need to turn on, and the brightness if these lights.

To begin our design, an algorithm will be used and tested on an Arduino. This logic can then be converted to be used on the PLC either using the script function (similar language to C), or the ladder logic of the PLC software.

A demo will be built first using a PLC and simple lights. This demo will be presented to facilities. If approved, we will manipulate Room 711 (electrical engineering lab) lights and circuitry with supervision and support from 2 professional engineers that facilities will provide.
The purpose of this project is to design and realize a model car capable of autonomous navigation and movement in a static environment. This project has been roughly divided into four sub-projects: power systems design, software design (submitted in a separate application), sensor communication, and feedback control. The project integrates topics studied in such courses as Embedded Systems, Feedback Control, Power Systems, Electronics I & II, and other general EE courses.
Originally, as a DURF project, I was building a robot tour guide for NYU Shanghai, but then I realized there are a lot of issues with indoor navigation that are very hard to solve. So as a continuation, I am building a robot that helps me to create large scale drawings with the reference to an image of my choice.

The reference image will be converted to grayscale and divided into a 20 by 20 grid (or the canonical 32 by 32, if time permits). Each time the robot creates an abstract/representational drawing within one piece of 20-by-20-cm paper, achieving the same tone as the corresponding cell of the reference image. All 400 (or 1024) small drawings will be put together as one 4-by-4-meter (or 6.4-by-6.4-meter) drawing that represents the reference image.
The project is a development of my previous project Air Butler. I have been working in air-pollution-related projects for about two years now. One of the major obstacles in people getting protection against air pollution is lack of awareness. People generally do not have access to information on indoor air quality, which leads to negligence of indoor air pollution, which is actually the major cause of deaths from air pollution. If people are able to see the air pollution and what exactly is the pollution, there would be a lot more motivation for people to find safe protection for themselves.

I hope to feed the data of air pollution into a mobile app on the scale of within a room, several hundred meters, and several miles, respectively. The user will be able to choose on which scale he/she would like to see. If he/she chooses the room/city mode, then as he/she turns around wearing glasses, he/she would be able to see the concentration of air pollutants in different directions in the room/city. In particular, he/she will be able to see which pollutants are dense in which location.
Cardboard Shikumen is a web-based virtual reality project aiming to document neighbourhoods featuring Shikumen architecture in downtown Shanghai.

Cities with long histories often face the dilemma between preserving old architectural heritages and making space for new developments. This problem is especially severe in developing countries where the zeal for building the new often overshadow the need for preserving the old. In Shanghai, many neighbourhoods of traditional Shikumen houses (‘stone gate houses’), featuring an architectural style unique to the city that blends Chinese and Western architectural influences, are quickly disappearing due to the accelerating urban renewal processes in the city, largely driven by China’s real estate boom.

In this project I demonstrate my experiments in documenting the architectural heritages of traditional Shikumen houses using web-based virtual reality technologies. Specifically, I document and present a Shikumen neighbourhood in southern Zhabei District, Shanghai. Using 360-degree panorama cameras, I captured photo and video footages of the neighbourhood in June-July 2015 and March-April 2017. The footages are displayed in a web-based virtual reality interface that allows the user to visit the neighbourhood on their computers or phones, and switch back and forth between the footage from different years to observe the changes that have happened over time on the neighbourhood.

**STUDENT** Alicja Jader (Interactive Media Arts)
**PROJECT TYPE** Capstone Project
**MENTOR** Roopa Vasudevan

My Capstone for Interactive Media Arts has two parts: an interactive video installation and a research essay on trends in interactive cinema. The installation will focus on exploring the relationship between the sound and the image.

In the research project, I am first setting out to answer what kinds of work belong and what kinds do not belong to the interactive cinema category. I make a distinction between cognitive and functional interactions, which remain independent from a film, and the interaction that is specific to a particular piece. I also distinguish between games and interactive films on the basis of the type of experience they offer to their respective audience. After establishing a satisfactorily narrow definition of my topic, I then move to analyze the trends that exist within the discussed discipline. They include the “Forking Paths” model, in which, at certain points of the plot, the viewers make choices for the protagonist; the “Collective Work” model, which encourages the audience to co-create a piece by, for example, drawing and submitting individual frames to the project; the “Create-As-You-Go” scenario, in which the spectators, by taking a certain path or touching the screen in a particular way, affect the edit of the film they are watching; the “Personalization” category, in which the project is modified based on the information it has about the viewer; and the “Free Navigation” model which lets the audience freely explore the constructed narrative.
Interactive Media Arts

Mapping Identity Onto “Home”

STUDENT  Pramugdha Maheswari (Business & Finance)
PROJECT TYPE  Capstone Project
MENTOR  David Perry

The cities I have lived in have been very welcoming, they’ve allowed me to make homes out of them, but I don’t belong in any of them. I am still in the process of figuring out for myself what home is. To some, it is the place where they were born or where they grew up or where they live now. To others, it is where family is or it is with a significant other. But with a smartphone and internet availability almost wherever I live, I am always connected to my loved ones. I carry my music, work, and social life with me. Technology allows me to find myself wherever I am: I can never be lost. Does that mean I’m always at home? In my work, I have tried to explore this ‘unbelonging’ by putting poetry in conversation with electronic media. One of my greatest fears is that I will never find a place where I can truly belong, but then, maybe I don’t need a place to belong to. Maybe I can find a home in every city I go to, a home in every poem I write.
Interactive Media Arts

The History of Artificial Light And How Its Development Changed Urban Life After Dark

STUDENT  Jingyi Sun (Interactive Media Arts)
PROJECT TYPE  Capstone Project
MENTOR  Roopa Vasudevan

My name is Jingyi Sun, and I am a senior studying Interactive Media Arts (IMA) and Global China Studies. I will conduct research on the history of artificial light (focusing on gas and electrical lighting fixtures), and how its development throughout time drastically changed urban life after dark. The interactive project, is the tangible output of this research in the form of a book detailing the development of artificial electrical light. Each page will feature a prominent light source throughout the historical timeline (such as the kerosene lamp, or the LED). To make the book more interactive and fun, I will be utilizing soft circuits (conductive tape, paint, ink as well as LED stickers).
Interactive Installations for Communities

**STUDENT**  Maggie Marie Walsh (Interactive Media Arts)
**PROJECT TYPE**  Capstone Project
**MENTOR**  Sakar Pudasaini

My project aims to develop and augment the emerging coffee community in Shanghai by connecting two Seesaw Coffee cafes. I will create an interactive art installation, which will be a wall of photos in two separate Seesaw locations, and will be installed late March 2017. The photos will be acquired from entries sent in by customers using their personal mobile phones. The paper I will write will look into past interactive installations that have aimed to connect people over long distances. I will break down their impact on people’s behavior and design characteristics.
3x3: An Interactive Sound Art Installation

**STUDENT** Yifan Wang (Interactive Media Arts)
**PROJECT TYPE** Capstone Project
**MENTOR** Roopa Vasudevan

3x3: an interactive sound art installation aims at creating a sonic environment that evokes personal or collective emotions.
Interactive Media Arts

Shanghai Corners - An Interactive Website

STUDENT  Zhijian Xu (Interactive Media Arts)
PROJECT TYPE  Capstone Project
MENTOR  Roopa Vasudevan

This project is a photo- and audio- based website containing an interactive map of the city of Shanghai. By documenting the sound and capturing the moment in more than fifty corners in Shanghai, from the most cosmopolitan place like Jingan Area to the rather rural and developing area like Baoshan Area, I am going to discover the stories behind the city, share impression and expectation and offer a comprehensive perspective of the city and its culture to website viewers. Two major works are required in this project. One is data collection, including photo taking, audio recoding and interviewing, and the other is website construction, including building a framework and interactive animation by using HTML, CSS and JavaScript, creating a map on the basis of Google API and Mapbox, and beatifying the interface and designing icons by using Adobe Photoshop and Illustrator.
One Versus All

STUDENT  Xiran Yang (Interactive Media Arts)
PROJECT TYPE  Capstone Project
MENTOR  Roopa Vasudevan

“One versus All” is an interactive installation. It is inspired by both the one-child policy in China and the repetition art format. The one-child policy plays as a policy that was repeatedly assigned to different Chinese families. The repeated assignment in return gets different outcomes. The one-child children, as the “products” of this repeated policy, somehow together form a united and collective memory about this 36-year-long-policy. One policy, one child, many one-child children and finally one collective memory from all of those one-child children—“one versus all” ultimately tries to recreate this collective memory by telling a story of 36 people.

Documentation at: http://ima.nyu.sh/documentation/2017/03/07/one-versus-all-xirans-senior-project/
Exposed & Interlaced – Exploring Motion in Analog and Digital

STUDENT Zhang Zhan (Interactive Media Arts)
PROJECT TYPE Capstone Project
MENTOR Sakar Pudasaini

My IMA capstone project is to visualize the difference of human movement using analog and digital methods. To do this, I simultaneously recorded a solo dance performance with both long-exposure film photography and a Microsoft Kinect’s depth and motion sensing. The deliverable is a sequence of imaging chronicling the entire dance performance into 10 different fragments. The viewer is able to view each fragment as a long exposure film print, as a representation of analog means, and an interactive lenticular that allows the viewer to see a short video clip by changing their perspective, as a representation of digital means. The fragments are displayed sequentially to communicate the entire dance performance.

This project is a culmination of my skill set as I am applying the film photography techniques I learned in Prague with the Kinect motion sensing skills I learned in IMA. A wholly original concept, this project dares to mix means of media that haven’t been mixed before and is an opportunity for me to contribute to the fields of work I have always admired in data visualization, photography, and performance-based art, while starting quality documentation in areas that have been ill documented, like lenticular printing.
Beauty Talks

STUDENT Nicole Chan (Interactive Media Arts)
PROJECT TYPE DURF
MENTOR Marianne Petit

Beauty Talks is a research-based, fine art photography series that explores the changes in Chinese feminine beauty standards as a perspective into the nation’s political and socioeconomic environment.
Special Program
Image · Imagination

Exhibition of the Introduction to Photography class

3rd Floor outside the Auditorium

Image · Imagination — an exhibition of artworks from Professor Barbara Edelstein and Professor Jian-Jun Zhang’s Introduction to Photography class. The students will present photography artworks and videos from the semester.

Jade Alexandre
Tatiana Bautista
Dhruv Bhatia
Ena Cemalovic
Reine Defranco
Nina Demirjian
Patricia Diaz
Louise A. Draper
Sen Ip Ko

Jiawei Li
Andrew Gary Loh
Yi Miao
Valentine Parisot-Zwally
Khadija Saeed
Yifan Wang
Zining Wang
Jiamin Zhang
Yu Zhou
Performing Arts

Auditorium

1:30-1:50 PM Solo Voice
(From the Studio of Jie Wang, accompanist: Jie Wang)
Erin Siu: 味道 (The Scent) 4’
Composer: Guolun Huang

Sara Jo Battat: Bill 3’30”
Composer: Jerome Kern From: Musical "Showboat"

Mio Bischoff: Try Again 3’
Composer: Mio Bischoff (original song)

1:50-2:00 PM Chorale (Chorale Director: Dianna Heldman,
Associate Directors: Jeremy Hissong and Mickey Zhang)
Bridge Over Troubled Water 4’
Composer: Paul Simon, Arr. Mark Hayes

2:00-2:20 PM Piano (From the Studio of Meiling Chen)
Lily Wang: La Campanella 5’30”
Composer: Franz Liszt

Romano Lee: Interstellar 5’
Composer: Hanz Zimmer

Chenyang Mei: Silver Clouds Chasing the Moon 3’30”
Composer: Jianzhong Wang

2:20-2:40 PM Drama
(From James Mirrione’s Acting and Drama class)
Group monologue from Brecht’s The Resistible Rise of Arturo Ui 12’

3:00 PM NYU Shanghai Alma Mater 5’30”
Composer: Jeremy Hissong, Dianna Heldman & Joyce Tan
NYU Shanghai Alma Mater 上海纽约大学校歌

We have come to stand together, soon we’ll part our separate ways,
But we leave behind a legacy to light another’s way.

We will build on our foundation, cross the mountains and the seas,
Giving rise to strength in unity for all the world to see,
Giving rise to strength in unity for all the world to see.

We are Shanghai, we’re the city of lights.
We are Shanghai, and the future is bright.
We’re chasing horizons, dispel the dark give rise to
Brightness and love for all lands.
The world is not too big for us to be friends.

我们来自五湖四海怀抱热诚理想
求索新知收获灼见准备好扬帆起航

以天下为已任以世界为课堂
我们点亮盏盏微光照亮彼此方向
我们点亮盏盏微光照亮前行方向

We are Shanghai, we’re the city of lights.
We are Shanghai, and the future is bright.
We’re chasing horizons, dispel the dark give rise to
Brightness and love for all lands.
The world is not too big for us to live...

We’ve opened up our minds, we’re reaching for the skies.
We’re united together, we breathe as one.
Bridging our nations, the best is yet to come.

We are Shanghai, we’re the city of lights.
We are Shanghai, and the future is bright.

The future’s in Shanghai, 这城市流光溢彩
We are Shanghai, 下一站何其精彩
We’re chasing horizons, dispel the dark give rise to
Brightness and love for all lands.
听世界在召唤，未来由你我涂彩
边憧憬边勇敢

The world is not too big,
For all of us to sing.
The world is not too big for us
To live with open minds,
To live with open hearts,
We’re reaching for the sky,
We are Shanghai.