




ALBERT TIANXIANG LIU

Department of Chemical Engineering • Massachusetts Institute of Technology
77 Massachusetts Ave, Building 66, Room 564, Cambridge, MA 02139
(515) 864-1118 • email: atliu@mit.edu

EDUCATION

- Anticipated May 2019 Ph.D., Chemical Engineering, Massachusetts Institute of Technology 
Thesis: *Molecular Interaction with Low-Dimensional Materials*
Advisor: Michael S. Strano
- Anticipated May 2019 Graduate Education in Medical Sciences (GEMS), MIT – Harvard Medical School
- June 13, 2014 B.S. with honor, Chemical Engineering, California Institute of Technology (GPA: 4.0/4.0) 
Thesis: *Nickel-Catalyzed Asymmetric Alkylation of α -Halo Boronic Esters*
Advisors: Gregory C. Fu, John H. Seinfeld, and John D. Roberts
- May 20, 2012 B.A. with honor, Chemistry, Grinnell College, *Valedictorian* (GPA: 4.0/4.0) 

PROFESSIONAL EXPERIENCES

- 2018–19 [Graduate Programs Committee](#), Office of Graduate Education, MIT Cambridge, MA
 - Evaluated proposals for the adoption and termination of graduate degree programs
 - Recommended to the Faculty candidates for advanced degrees
 - Served as the standing Faculty advisory body to the Vice Chancellor and the Vice President
- 2014 **Facilities Engineering Intern**, Chevron Energy Technology Company, Chevron U.S.A. Inc. Richmond, CA
 - [Invented](#) novel synthetic pathway to Zeolite SSZ-52, for **next gen.** engine exhaust clean-up
 - Reduced current production cost by **85%**, with **~40%** increase in de-NO_x performance
 - Mentored by **Stacey I. Zones** and **Robert J. Saxton** in ETC's catalysis division
 - Collaborated with Michael W. Deem (Rice U.), performed MD guided target syntheses
 - [Published](#) with the catalysis team about this breakthrough within **12 weeks**
- 2011–12 **Chemistry Student Educational Policy Committee** Grinnell, IA
 - Served as a student-faculty liaison, provided inputs on curriculum and organized social events
 - Participated in faculty reviews, faculty hiring and promotions in the Chemistry Department

RESEARCH EXPERIENCES

- 2014– **Michael S. Strano** (Material Science, Nanotechnology) Cambridge, MA
Engineering Nano-Materials for Applications in Energy, Micro-Robotics, and Bio-Medical Sensing
 - Enhanced Thermopower Wave efficiency by **100** folds (featured in [MIT news](#)) | [EES \(2016\)](#)
 - Discovered Asymmetric Chemical Doping for liquid phase electricity harvesting | [AM \(2016\)](#) [JACS \(2017\)](#)
 - [Invented Synthetic Cells](#) – 2D-microparticles with digital memory (MIT news) | [NM \(2018\)](#)
 - [Invented Thermal Resonator](#) to harvest energy from thermal fluctuations ([MIT news](#)) | [NC \(2017\)](#)
 - Developed Aerosolizable Electronics ([MIT news](#), [Nature news](#), [Nature highlight](#), [IEEE](#)) | [NN \(2018\)](#)
- 2014 **Stacey I. Zones** (Heterogeneous Catalysis, Zeolite Synthesis) Richmond, CA
 - Generated a library of organic precursors, informed by computational design
 - Developed an economically viable synthetic strategy towards Zeolite SSZ-52 | [CM \(2016\)](#)
- 2012–14 **Gregory C. Fu** (Organometallic Catalysis, Synthetic Organic Chemistry) Pasadena, CA
 - Discovered a modular method to synthesize **chiral** organic compounds | [Science \(2016\)](#)
- 2013 **John H. Seinfeld** (Applied Mathematics, Mathematical Modeling)
 - Solved the pollutant-uptake modeling challenge in **acid rain** droplets | [AE \(2014\)](#)
- 2011–14 **John D. Roberts** (Physical Organic Chemistry, NMR Spectroscopy)
 - Developed a molecular tool to elucidate chelation structures in proteins | [OL \(2013\)](#) [IPC \(2014\)](#)
 - Quantified substituent effects on peptide-carboxylate Hydrogen bond strength | [IOC \(2013\)](#)

TEACHING EXPERIENCES

- 2018 [Kaufman Teaching Certificate](#), MIT Teaching and Learning Laboratory Cambridge, MA
Certificate program for MIT graduate students to develop skills for academic teaching
- 2017-18 **Lecturer**, [SPARK](#), [SPLASH](#), [HSSP](#), MIT Educational Studies Program Cambridge, MA
MIT run program to teach middle and high school students ([teaching profile](#))
- (2018 Summer HSSP) Molecular Machines and Electronics – Industrial Revolution 5.0?
 - (2018 Spring SPARK, HSSP) How Do You Generate Electricity from Water?
 - (2017 Spring SPLASH) From Molecular Conformation to Nanotechnology, Energy and Medicine
 - (2017 Spring SPARK) Nanotechnology Enabled Artificial Cells
- 2016-18 **Project Consultant**, [Chemical Engineering Projects Lab](#), MIT Cambridge, MA
• Teach, train, and guide third-year undergraduates to design and conduct research projects
- 2010–16 **Teaching Assistant** Pasadena, CA
- (2016) Analysis of Transport Phenomena (William M. Deen, Martin Z. Bazant, MIT)
 - (2014) Chemical Reaction Engineering (Frances H. Arnold, Caltech)
 - (2014) Separation Processes (John H. Seinfeld, Caltech)
 - (2012) Organic Chemistry I & II (Stephen R. Sieck, T. Andrew Mobley, Grinnell)
 - (2011) Classical Mechanics (Sujeev Wickramasekara, Grinnell)
 - (2010) Organic Chemistry Laboratory (James G. Lindberg, Grinnell)

AWARDS AND HONORS

- 2018 Judge's Choice (**1st place team**), [Harvard Surgical Program in Innovation](#), Harvard Medical School
- 2017 [Materials Research Society](#) Graduate Student Award (*Silver*), Materials Research Society
- 2017 [Electronic & Photonic Materials](#) Graduate Student Award, finalist, American Institute of Chemical Engineering
- 2017 Outstanding [Graduate Teaching](#) Assistant Award, MIT
- 2017 [Goodwin](#) Teaching Medal, finalist (nominated by Dept. of Chemical Engineering), MIT
- 2016 [Carbon Nanomaterials](#) Graduate Student Award (**1st place**), American Institute of Chemical Engineering
- 2014 [Presidential](#) Graduate Fellow, MIT
- 2014 Gordon Wu Fellow (declined), Princeton University
- 2014 Merck Index Award, Caltech, sponsored by Merck & Co., Inc.
- 2014 [Tau Beta Pi](#) Fellow, California Beta Chapter
- 2013 [Jack E. Froehlich](#) Memorial Award, Caltech
- 2013 David S. Koons Research Fellow, Caltech
- 2013 Don Shepard Award, Caltech
- 2013 [Andrew W. Archibald Prize](#) for Highest Scholarship (**Valedictorian**), Grinnell
- 2013 Chemistry Alumni Award, Department of Chemistry, Grinnell
- 2013 [Phi Beta Kappa](#) Scholar, Iowa Beta Chapter
- 2011 ACS Polymer Chemistry Award, Polymer Education Committee, American Chemical Society
- 2011–13 Summer Undergraduate Research Fellow, Caltech
- 2011 [Snyder](#) Scholar (declined), University of Illinois at Urbana-Champaign
- 2010 Mentored Advanced Project Fellow, Grinnell
- 2010 Silver Medal, Grinnell College Team, Iowa Collegiate Mathematics Competition, University of Iowa
- 2009 Neil Klausner Award, Grinnell
- 2009–12 Dean's Lists (all semesters), Grinnell
- 2003 Silver Medal, National Mathematical Olympiad, Chinese Mathematical Society

PATENTS

- 2018 **(04)** Cottrill, A. L.; Strano, M. S.; Mahajan, S. G.; **Liu, A. T.** Materials, Devices, and Methods for Resonant Ambient Thermal Energy Harvesting using Thermal Diodes. 18135.124217.
- 2017 **(03)** Strano, M. S.; Cottrill, A. L.; Mahajan, S. G.; **Liu, A. T.** Koman, V. B. Energy Harvesting from Ambient Thermal Fluctuations using a Thermal Resonance Device. 18135.124217.
- 2017 **(02)** **Liu, A. T.**; Liu, P.; Koman, V. B.; Kozawa, D.; Strano, M. S. 2D Electronic Microparticles. US 62/525,752.
- 2016 **(01)** **Liu, A. T.**; Davis, T. M.; Lew, C. M.; Xie, D.; Elomari, S. A.; Deem, M. Method For Preparing Zeolite SSZ-52. [US 2016/0068402 A1](#).

- 2018 **(21)** Liu, A. T.*; Kunai, Y.*; Cottrill, A. L.; Strano, M. S. Solvent Induced Electricity for in situ Electrochemistry. *in preparation*.
- 2018 **(20)** Liu, A. T.; Ge, Z.; Cottrill, A. L.; Strano, M. S. Direct Energy Generation via Molecular Interaction with Nano-structured Materials, a Mechanistic Perspective. *Advanced Energy Materials* **2018**, *in press*.
- 2018 **(19)** Liu, P.*; Liu, A. T.*; Kozawa, D.; Dong, J.; Saccone, M.; Koman, V. B.; Wang, S.; Son, Y.; Wong, M. H.; Strano, M. S. Autoperforation of 2D Materials for Generating Two Terminal Memresistive Janus Particles. *Nature Materials* **2018**, *in press*.
- 2018 **(18)** Cottrill, A. L.; Wang, S.; Liu, A. T.; Strano, M. S. Dual Phase Change Thermal Diodes for Enhanced Rectification Ratios: Theory and Experiment. *Advanced Energy Materials* **2018**, [1702692](#).
- 2018 **(17)** Koman, V. B.; Liu, P.; Kozawa, D.; Liu, A. T.; Strano, M. S. Colloidal, Nanoelectronic State Machines Based on 2D Materials for Aerosolizable Electronics. *Nature Nanotech.* **2018**, *online*.
- 2018 **(16)** Cottrill, A. L.; Liu, A. T.; Kunai, Y.; Koman, V. B.; Kaplan, A.; Mahajan, S. G.; Liu, P.; Toland, A. R.; Strano, M. S. Ultra-High Thermal Effusivity Materials for Resonant, Ambient Thermal Energy Harvesting. *Nature Comm.* **2018**, *9*, [664](#).
- 2018 **(15)** Liu, P.; Cottrill, A. L.; Kozawa, D.; Koman, V. B.; Parviz, D.; Liu, A. T.; Yang, J.; Tran, T. Q.; Wong, M. H.; Wang, S.; Strano, M. S. Emerging Trends in 2D Nanotechnology that Are Redefining Our Understanding of “Nanocomposites”. *Nano Today* **2018**, *21*, [18–40](#).
- 2017 **(14)** Salem, D. P.; Gong, X.; Liu, A. T.; Koman, V. B.; Dong, J.; Strano, M. S. Ionic Strength Mediated Phase Transitions of Surface Adsorbed DNA on Signed-walled Carbon Nanotubes. *J. Am. Chem. Soc.* **2017**, *139*, [16791–16802](#).
- 2017 **(13)** Bellisario, D. O.; Liu, A. T.; Kozawa, D.; Han, R.; Harris, J. K.; Zabala, R. B.; Wang, Q. H.; Agrawal, K. V.; Son, Y.; Strano, M. S. Experimental Observation of Real Time Molecular Dynamics using Electromigrated Tunnel Junctions. *J. Phys. Chem. C* **2017**, *121*, [22550–22558](#).
- 2017 **(12)** Kunai, Y.*; Liu, A. T.*; Cottrill, A. L.; Koman, V. B.; Strano, M. S. Observation of the Marcus Inverted Region of Electron Transfer from Asymmetric Chemical Doping of Pristine (*n*, *m*) Single-walled Carbon Nanotubes. *J. Am. Chem. Soc.* **2017**, *139*, [15328–15336](#).
- 2017 **(11)** Son, Y.; Kozawa, D.; Liu, A. T.; Koman, V. B.; Wang, Q. H.; Strano, M. S. A Study of Bilayer Phosphorene Stability under MoS₂ Passivation. *2D Materials* **2017**, *4*, [025091](#).
- 2017 **(10)** Kwak, S.; Wong, M. H.; Lew, T. T. S.; Bisker, G.; Lee, M. A.; Kaplan, A.; Dong, J.; Liu, A. T.; Koman, V. B.; Sinclair, R. M.; Hamann, C.; Strano, M. S. Nanosensor Technology Applied to Living Plant Systems. *Annu. Rev. Anal. Chem.* **2017**, *10*, [113–140](#).
- 2016 **(09)** Schmidt, J.; Choi, J.; Liu, A. T.; Slusarczyk, M.; Fu, G. C. A General, Modular Method for the Catalytic Asymmetric Synthesis of Alkylboronate Esters via Alkyl-Alkyl Cross-Coupling. *Science* **2016**, *354*, [1265–1269](#).
- 2016 **(08)** Liu, A. T.*; Kunai, Y.*; Liu, P.; Kaplan, A.; Cottrill, A. L.; Smith-Dell, J. S.; Strano, M. S. Electrical Energy Generation via Reversible Chemical Doping on Carbon Nanotube Fibers. *Advanced Materials* **2016**, *28*, [9752–9757](#).
- 2016 **(07)** Mahajan, S. G.*; Liu, A. T.*; Cottrill, A. L.; Kunai, Y.; Bender, D.; Castillo, J.; Gibbs, S. L.; Strano, M. S. Sustainable Power Sources Based on High Efficiency Thermopower Wave Devices. *Energy and Environmental Science* **2016**, *9*, [1290–1298](#).
- 2016 **(06)** Davis, T. M.; Liu, A. T.; Lew, C. M.; Xie, D.; Benin, A. I.; Elomari, S.; Zones, S. I.; Deem, M. W. Computationally Guided Synthesis of SSZ-52: A Zeolite for Engine Exhaust Clean-up. *Chemistry of Materials* **2016**, *28*, [708–711](#).
- 2014 **(05)** Liu, A. T.; Zaveri, R. A.; Seinfeld, J. H. Analytical Solution for Transient Partitioning and Reaction of a Condensing Vapor Species in a Droplet. *Atmospheric Environment* **2014**, *89*, [651–654](#).
- 2014 **(04)** Lai, H. W. H.; Liu, A. T.; Emenike, B. U.; Carroll, W. R.; Roberts, J. D. Conformational Preferences of N,N-Dimethylsuccinamate as a Function of Alkali and Alkaline Earth Metal Salts: Experimental Studies in DMSO and Water as Determined by ¹H-NMR Spectroscopy. *J. Phys. Chem. A.* **2014**, *118*, [1965–1970](#).
- 2013 **(03)** Liu, A. T. Nag, M.; Carroll, W. R.; Roberts, J. D. Conformational Analysis of N,N,N-Trimethyl-(3,3-dimethylbutyl)ammonium Iodide by NMR Spectroscopy: a Sterically Hindered Trans-standard. *Magn. Reson. Chem.* **2013**, *51(11)*, [701–704](#).

- 2013 **(02)** Liu, A. T.; Emenike, B. U.; Carroll, W. R.; Roberts, J. D. Conformational Equilibria of N,N-Dimethylsuccinamic Acid and Its Lithium Salt as a Function of Solvent. *Org. Lett.* **2013**, *15*(4), 760–763.
- 2013 **(01)** Emenike, B. U.; Liu, A. T.; Naveo, E. P.; Roberts, J. D. Substituent Effects on Energetics of Peptide-Carboxylate Hydrogen Bonds as Studied by ¹H NMR Spectroscopy: Implications for Enzyme Catalysis. *J. Org. Chem.* **2013**, *78*(23), 11765–11771.

(* These authors contributed equality to this work.)

BOOK CHAPTERS

- 2018 **(02)** Liu, A. T.; Ge, Z.; Strano, M. S. Energy Harvesting Techniques Mediated by Molecular Interactions with Nanostructured Carbon Materials. *Robotic Systems and Autonomous Platforms*, edited by Walsh, S. M.; Strano, M. S. (Elsevier 2018)
- 2018 **(01)** Yang, J. F.; Koman, V. B.; Liu, P.; Liu, A. T.; Strano, M. S. Synthetic Cells with Two-dimensional Materials. *Robotic Systems and Autonomous Platforms*, edited by Walsh, S. M.; Strano, M. S. (Elsevier 2018)

INVITED SEMINARS AND CONFERENCE PROCEEDINGS

- 2018 Foldable and Adaptive Two-dimensional Electronics, **Air Force Office of Scientific Research MURI Annual Review** (Sep. 21, 2018), *Cornell University*
- 2018 Single-walled Carbon Nanotube Mediated *in situ* Electrochemistry, **256th ACS National Meeting** (Aug. 23, 2018), *Boston, MA*
- 2018 From Asymmetric Doping to Colloidal Electronics – Concepts in Biosensing and Energy Generation using Low Dimensional Materials, **256th ACS National Meeting** (Aug. 21, 2018), *Boston, MA*
- 2018 Synthetic Cells – Colloidal Electronic Microparticles, **Boston Academic Researchers Symposium** (July. 19, 2018), *Northeastern University*
- 2018 From Thermopower Waves to Asymmetric Chemical Doping – New Concepts in Energy Storage and Generation Using Molecular Interactions with Single-Walled Carbon Nanotubes, **233rd ECS Meeting** (May. 14, 2018), *Seattle, WA*
- 2018 2D Materials Encapsulated Colloidal Electronic Cells, **MIT Polymer Day** (Apr. 11, 2018), *MIT*
- 2018 Autoperforation of 2D Materials for Generating Memristive Janus Particles, **255th ACS National Meeting** (Mar. 22, 2018), *New Orleans, LA*
- 2018 Electricity from Asymmetric Chemical Doping, **MIT Chemical Engineering Department Student Seminar** (Mar. 12, 2018), *MIT*
- 2018 Synthetic Electronic Cells: Distributed, Modular, Particulate Electronic Devices as Platform for Data Collection and Storage, **MIT Intelligent Quest 2018** (Mar. 01, 2018), *MIT*
- 2018 Autoperforation of 2D Materials for Self-Powered, Memresistive Microparticles, **2018 Microsystems Annual Research Conference** (Jan. 30, 2018), *Bretton Woods, NH*
- 2017 Towards a Modular Memristive Microparticle – Nanoscale Device Fabrication and Electricity Generation, **2017 Materials Research Society Fall Meeting** (Nov. 28, 2017), *Boston, MA*
- 2017 Nano-Materials Enabled 2D Colloidal Electronics and Electrical Energy Generation Processes, **2017 AIChE Annual National Meeting** (Oct. 31, 2017), *Minneapolis, MN*
- 2017 New Materials by Folding and Autoperforation of 2D Surfaces, **Air Force Office of Scientific Research MURI Annual Review** (Oct. 26, 2017), *MIT*
- 2017 Design and Fabrication of Colloidal State Machines for Petrochemical Applications, **E&P Technical Exchange at King Fahd University of Petroleum and Minerals** (Oct. 16, 2017), *Dhahran, Saudi Arabia*
- 2017 Chirality Associated Marcus Inverted Region Observed in Single-Walled Carbon Nanotubes via Asymmetric-doping Induced Electrical Potential (Aug. 22, 2017), **254th ACS National Meeting**, *Washington, DC*
- 2017 Conformational Analysis Guided Molecular Transformation and Energy Generation Processes, **Department Invited Seminar Series** (Jul. 17, 2017), *Zhejiang University, Hangzhou, China*
- 2017 Autoperforation of 2D Materials for Generating Two Terminal Memresistive Janus Particles, **2017 Sense.nano Symposium** (May 25, 2017), *MIT*
- 2017 Electrical Energy Generation via Asymmetric H₂O Doping (Mar. 22, 2017), **MIT Water Night**, *MIT*
- 2016 Sustainable Power Sources Based on High Efficiency Thermopower Wave Devices, **2016 AIChE Annual National Meeting** (Nov. 15, 2016), *San Francisco, CA*
- 2016 Electrical Energy Generation via Reversible Chemical Doping on Carbon Nanotube Fibers, **2016 AIChE Annual National Meeting** (Nov. 14, 2016), *San Francisco, CA*
- 2016 Ambient Energy Harvesting: Thermal Resonators, **MIT Energy Night** (Oct. 13, 2016), *MIT*

- 2016 Graphene Autoperforation: Mold-based Strain Controlled Crack Propagation, **Air Force Office of Scientific Research MURI Annual Review** (Sep. 22, 2016), *Cornell University*
- 2016 Novel Energy Sources Based on Excess Thermopower and Carbon Nanotube Fibers, **252nd ACS National Meeting** (Aug. 23, 2016), *Philadelphia, PA*
- 2016 Technologies for Performance Enhancement and Persistence of Low-Temperature Undersea Dives, **Office of Naval Research Neptune Program Annual Review** (May 23, 2016), *Arizona State University*
- 2016 Fascination towards Nanoscale Energy Generation using Thermopower Waves, **Material Processing Center Project Pitch**, Center for Material Science and Engineering (Jun. 10, 2016), *MIT*
- 2014 Development towards Facile Synthesis of Zeolite SSZ-52, **Chevron R&D Department Seminar**, *Richmond, CA*
- 2014 Nickel-Catalyzed Asymmetric Alkylation of α -Halo Boronic Esters, **Senior Thesis Defense**, *Caltech*
- 2012 Theoretical Study of the NO₂ Decomposition over a Modified Cu-FAU Zeolite, **244th ACS National Meeting**, *Philadelphia, PA*
- 2011 Determination of the Dihedral Angles in Predominantly *trans*-1,2-disubstituted Ethane Systems Using NMR Spectroscopy, **243rd ACS National Meeting**, *San Diego, CA*
- 2011 Substituent Effects on Energetics of Peptide-Carboxylate Hydrogen Bonds, **Summer Undergraduate Research Fellow Seminar**, *Caltech*
- 2011 Decomposition of NO₂ and N₂O gases on Cu-Al and Fe-Al Modified Zeolite Catalysts, **Undergraduate Research Symposium**, *University of Chicago*
- 2011 Oxime Cross-Metathesis towards Nitrones, **Student Research Seminar**, *Grinnell College*
- 2010 Computational Study of the Decomposition of NO₂ and N₂O gases on Fe-Al Modified Zeolite Catalysts, **Undergraduate Research Symposium**, *Washington University at Saint Louis*
- 2009 Computational Study of the Decomposition of NO₂ and N₂O gases on Cu-Al Modified Zeolite Catalysts, **Mentored Advanced Project Seminar**, *Grinnell College*

STUDENTS SUPERVISED

| | <i>Undergraduate</i> | <i>Affiliation</i> | <i>Duration</i> | <i>Projects (contributed publications)</i> |
|---------|--------------------------------------|--------------------|-----------------|---|
| 2018 | Paul A. Baynard | Westampton, NJ | 3 months | Autoperforation of synthetic cells |
| 2017 | Yannick L. Eatmon | MIT | 9 months | Electricity generation via SWNT/H ₂ O doping |
| 2016- | Rafid S. Mollah | MIT | 1.5 years | Electrochemistry using SWNT/CH ₃ CN electricity |
| 2016-17 | Linh Nguyen | MIT | 1 year | Chemical doping of 2D materials |
| 2016 | Max A. Saccone | Dartmouth | 3 months | MD simulation of graphene autoperforation (14) |
| 2015-16 | Jamila S. Smith-Dell | MIT | 1 year | High efficiency Thermopower Wave Devices (08) |
| 2015 | Stephen L. Gibbs | U. Florida | 3 months | Magnetic flux compression of Thermopower waves (07) |

CONTRIBUTED GRANT PROPOSALS

written under the supervision of Prof. Michael S. Strano (PI)

- 2018 **Project Title:** ISN4 - 1.2 Shock Mitigating and Reinforcing Molecular Nanocomposites
Award Number: W911NF-18-2-0048
Source of Support: ARO-ISN, University Affiliated Research Centers (UARC)
Total Award Amount: \$90,000 (Jan. 01, 2018 - Dec. 31, 2018)
- 2017 **Project Title:** Synthetic Routes to Graphamid and Grapheylene by High Pressure Control of In-Plane Polymerization and Activation
Source of Support: U.S. Army Research Office
Total Award Amount: \$500,000 (Jan. 16, 2018 - Jan. 15, 2021)
- 2015 **Project Title:** Thermal Management Technologies for Low-Temperature Undersea Drive Persistence
Award Number: N00014-16-1-2144
Source of Support: U.S. Navy Office of Naval Research (ONR)
Total Award Amount: \$497,246 (Jan. 01, 2016 - May. 31, 2018)
- 2015 **Project Title:** MURI - Foldable and Adaptive Two-dimensional Electronics (FATE)
Award Number: FA9550-15-1-0514
Source of Support: U.S. Air Force Office of Scientific Research (AFOSR)
Total Award Amount: \$534,746 (Sep. 30, 2015 - Sep. 29, 2018)

SERVICE AND ACTIVITIES

2018 **Gold Medal** • [Riverfront Dragon Boat & Asian Festival](#), Team ACE, Hartford, CT
2018 **First Place** • [Pineapple Regatta](#), MIT Rowing Club, Mystic River, MA
2018 **Bronze Medal** • [Finger Lakes International Dragon Boat Festival](#), Team Speeding Turtle, Ithaca, NY
2018 **Team Leader** • Harvard Surgical Program in Innovation, [Medical Hackathon](#), Harvard Medical School
2018 **Lecturer** • Digital Play Day: New Ways to Interface with Technology, [Cambridge Science Festival](#), MIT
2011 **Violinist** • Recital at Sebring-Lewis Hall, Bucksbaum Center of Fine Arts
2010 **Student Advisor** • Hannibal Kershaw Residence Hall, Grinnell College
2010 **Volunteer** (Rebuild houses for those suffered from the flood) • Nashville Volunteer Center, Nashville, TN
2009 **Medical Intern** (Shadowed clinical diagnosis and three surgeries) • Supervisor: Guy McCaw, M.D., Grinnell Regional Medical Centre, Grinnell, IA
2009 **Champion** • Men's Single, Collegiate Table-Tennis Tournament, Grinnell College
2006-09 **Gold Medals** • Men's 1500m track (for 5 consecutive seasons), Nanjing Foreign Language School
2004 **Host** • Nanjing Foreign Language School 2004 Art Festival
1999 **Level 10 (Highest Level) in Erhu Performance** • Chinese Academy of Music