Hyeongyun Cha

Assistant Professor
Department of Mechanical and Aerospace Engineering
University at Buffalo, The State University of New York

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EDUCATION

University of Illinois Urbana-Champaign — Urbana, IL
Ph.D., Mechanical Engineering — May 2016–April 2020
Thesis: Condensation driven solid-liquid interfacial phenomenon on functional surfaces
Adviser: Prof. Nenad Miljkovic

University of Illinois Urbana-Champaign — Urbana, IL
M.S., Mechanical Engineering — Jan 2015–May 2016
Thesis: Coalescence-induced nanodroplet jumping
Adviser: Prof. Nenad Miljkovic

University of Illinois Urbana-Champaign — Urbana, IL
B.S., Mechanical Engineering — Aug 2008–May 2014
Minor in Electrical Engineering

EMPLOYMENT

Device Research Laboratory, MIT — Cambridge, MA
Postdoctoral Associate, Adviser: Prof. Evelyn N. Wang — April 2020–December 2022
Prof. Gang Chen — January 2022–December 2023

- Developing machine learning assisted models for predicting and optimizing boiling heat transfer on scalable random surfaces for energy applications
- Developing portable atmospheric water harvesting devices for extreme climates
- Developing high energy density hydrogel thermal energy storage devices

Energy Transport Research Laboratory, UIUC — Urbana-Champaign, IL
Graduate Research Assistant, Adviser: Prof. Nenad Miljkovic — May 2015–March 2020

- Developed a unified regime map for jumping droplet condensation on micro/nanostructured superhydrophobic surfaces as a function of surface properties
- Developed novel optical microscopy techniques for studying dynamic wetting phenomena
- Investigated long-term durability of micro/nanoengineered hydrophobic surfaces under industrial condensation condition

International Institute for Carbon-Neutral Energy Research — Fukuoka, Japan
Visiting Research Scholar, Adviser: Prof. Yasuyuki Takata — July 2017–Aug. 2017

- Investigated heterogeneous nucleation dynamics of water on hydrophobic surfaces during atmospheric vapor condensation under drastically differing climate conditions

Littelfuse, Inc. — Champaign, IL
Engineering Intern — May 2014–Dec. 2014

Beckman Institute for Advanced Science and Technology — Urbana-Champaign, IL
Undergraduate Research Assistant, Adviser: Prof. Joseph Lyding — Jan. 2013–May 2014

Republic of Korea Air Force — Daegu, South Korea
Sergeant — July 2009–Aug. 2011

AWARDS & HONORS

Keynote Paper Award, Micro Flow and Interfacial Phenomena Conference	2023
1st Place, Best Poster Award, MIT Mechanical Engineering Research Exhibition	2023
2022 Outstanding MIT UROP Mentor Nominated by Their Students	2022
2nd Place, UIUC MechSE Art of Science Competition	2019
PPG-MRL Graduate Research Fellowship Award	2017–2018
Mavis Future Faculty Fellow Award	2017–2018
Graduate College Conference Travel Award	Fall 2017
Campus List of Teachers Ranked as Excellent by Their Students	Fall 2015

PAPERS IN REFEREED JOURNALS

In Review and In Preparation

1) H. Cha, M.-K. Kim, H. C. Chang, L. Zhang, E. N. Wang, and N. Miljkovic, "Pinning-Induced Microdroplet Self-Propulsion," **in revision**, 2023.
2) H. Cha, K. Lu, W. Stephenson, S. Deshpande, Y. Zhong, Y. Song, Y. Zhang, J. Leonard, T. Broderick, and E. N. Wang, "Nucleation Site Detection for Onset of Nucleate Boiling via Image Segmentation," **submitted**, 2023.
3) S. Cruz, K. Wilke, H. Cha, L. Zhang, Y. Zhao, and E. N. Wang, "Dry-Appearing Capillary-Driven Enhanced Surface Condensation of Steam," **submitted**, 2023.
4) H. Cha*, Y. Zhang*, Y. Zhong, Y. Song, S. Deshpande, W. Stephenson, K. Lu, T. Broderick, J. Leonard, and E. N. Wang, "Machine Learning-Assisted Models for Predicting Boiling Heat Transfer on Scalable Random Surfaces," in preparation. *Equal Contribution
5) H. Cha*, Y. Zhang*, Y. Zhong, Y. Song, S. Deshpande, W. Stephenson, K. Lu, T. Broderick, J. Leonard, and E. N. Wang, "Inverse Design of Scalable Boiling Heat Transfer Surfaces Using Generative Adversarial Network," in preparation. *Equal Contribution
6) S. Cruz, K. Wilke, H. Cha, L. Zhang, Y. Zhao, and E. N. Wang, "Heat Transfer Measurements of Vapor Condensation in Dry-Appearing Capillary-Driven Surfaces," in preparation.
7) S. Cruz, K. Wilke, H. Cha, L. Zhang, Y. Zhao, and E. N. Wang, "Condensation of Low Surface Tension Fluids in Dry-Appearing Capillary-Driven Surfaces," in preparation.
8) H. Cha, S. Rintaro, Y. S. Kim, E. N. Wang, and N. Miljkovic, "Resonant Oscillation of Nanodroplets on Functional Surfaces," in preparation.

Published and In Press

1) C. T. Wilson, H. Cha, Y. Zhong, A. Li, E. Lin, and B. El Fil, "Design Considerations for Next-Generation Sorbent-Based Atmospheric Water Harvesting Devices," *Device*, **1** (2), 10052, 2023.
2) M.J. Hoque, L. Li, J. Ma, H. Cha, S. Sett, X. Yan, K. F. Rabbi, J. Y. Ho, S. Khodakarami, J. Suwala, O. Mohammadmoradi, G. O. Ince, and N. Miljkovic, "Ultra-resilient multi-layer fluorinated diamond like carbon hydrophobic surfaces," *Nature Communications*, 14, 4902, 2023.
3) C. D. Díaz-Marín, D. Li, F. J. Vázquez-Cosme, S. Pajovic, H. Cha, Y. Song, C. Kilpatrick, G. Vaartstra, C. T. Wilson, S. Boriskina, and E. N. Wang, "Capillary Transfer of Self-Assembled Colloidal Crystals," *Nano Letters*, **23** (5) 1888-1896, 2023.
4) Y. Song, C. D. Díaz-Marín, L. Zhang, H. Cha, Y. Zhao, and E. N. Wang, "Three-Tier Hierarchical Structures for Extreme Pool Boiling Heat Transfer Performance," *Advanced Materials*, 2200899, 2022.
5) Y. Song, C, Wang, D. J. Preston, G. Su, M. M. Rahman, H. Cha, J. H. Seong, B. Philips, M. Bucci, and E. N. Wang, "Enhancement of Boiling with Scalable Sandblasted Surfaces," *ACS Applied Materials & Interfaces*, **14** (7), 9788-9794, 2022.
6) J. Oh, D. Orejon, W. Park, H. Cha, S. Sett, Y, Yokoyama, V. Thoréton, Y. Takata, and N. Miljkovic, "The Apparent Surface Free Energy of Rare Earth Oxides is Governed by Hydrocarbon Adsorption," *iScience*, **25** (1), 103691, 2022.
7) Y. Song, H. Cha, Z. Liu, J. H. Seong, L. Zhang, D. J. Preston, and E. N. Wang, "Alteration of Pool Boiling Heat Transfer on Metallic Surfaces by In Situ Oxidation," *International Journal of Heat and Mass Transfer*, **185**, 122320, 2021.

8) S. Sett, J. Oh, H. Cha, T. Veriotti, A. Bruno, X. Yan, G. Barac, L. Bolton, and N. Miljkovic, "Lubricant-Infused Surfaces for Low Surface Tension Fluids: Extent of Lubricant Miscibility," *ACS Applied Materials & Interfaces*, **13** (19), 23121-23133, 2021.
9) I. Oh, H. Cha, J. Chen, S. Chavan, A. Awad, O Darwish, N. Miljkovic, and Y. Hu, "Enhanced Condensation on Liquid-Infused Nanoporous Surfaces by Vibration-Assisted Droplet Sweeping," *ACS Nano*, **14** (10), 13367–13379, 2020.
10) B. S. Kim, M. K. Kim, Y. Cho, E. E. Hamed, M. U. Gillette, H. Cha, N. Miljkovic, V. K. Aakalu, K. Kang, K. N. Son, K. M. Schachtschneider, L. B. Schook, C. Hu, G. Popescu, W. C. Balance, S. Yu, S. G. Im, J. Lee, C. H. Lee, and H. Kong, "Electrothermal Soft Manipulator Enabling Rapid Transport and Handling of Thin Biological Sheets and Electronic Devices," *Science Advances*, **6** (42), eabc5630, 2020.
11) Q. Peng, X. Yan, J. Li, L. Li, H. Cha, Y. Ding, C. Dang, J. Li, and N. Miljkovic, "Breaking Droplet Jumping Energy Conversion Limits with Superhydrophobic Microgrooves," *Langmuir*, **36** (21), 9510-9522, 2020.
12) J. Ma, S. Sett, H. Cha, X. Yang, and N. Miljkovic, "Recent Developments, Challenges, and Pathways to Stable Dropwise Condensation: A Perspective," *Applied Physics Letters*, **116**, 260501, 2020. *APL's Most Cited Research*
13) X. Yan, F. Chen, X. Zhang, Y. Qin, C. Zhao, S. Sett, H. Cha, M. J. Hoque, F. Zhao, Z. Huang, and N. Miljkovic, "Atmosphere-Dediated Scalable and Durable Biphilicity on Rationally Designed Structured Surfaces," *Advanced Materials Interfaces*, **7** (13), 2000475, 2020.
14) M. J. Hoque, X. Yan, H. Keum, L. Li, H. Cha, J. K. Park, S. Kim, and N. Miljkovic, "High-Throughput Stamping of Hybrid Functional Surfaces," *Langmuir*, **36** (21), 2020.
15) H. Cha*, H. Vahabi*, A. Wu, S. Chavan, M.-K. Kim, W. Wang, A. K. Kota, and N. Miljkovic, "Dropwise condensation on Solid Hydrophilic Surfaces," *Science Advances*, **6** (2), eaax0746, 2020. *Equal Contribution
16) H. Cha, J. Ma, Y.S. Kim, L. Li, L. Sun, J. Tong, and N. Miljkovic, "*In Situ* Droplet Microgoniometry Using Optical Microscopy," *ACS Nano*, **13** (11), 113343-13353, 2019.
17) J. Ma, H. Cha, M.-K. Kim, D. G. Cahill, and N. Miljkovic, "Condensation Induced Delamination of Nanoscale Hydrophobic Films," *Advanced Functional Materials*, **29** (43), 1905222, 2019.
18) J. Reed, A. E. Gonsalves, J. K. Román, J. Oh, H. Cha, C. E. Dana, M. A. Toc, S. Hong, J. B. Hoffman, J. E. Andrade, K. D. Jo, M. Alleyne, N. Miljkovic, and D. M. Cropek, "Ultra-scalable multifunctional nanoengineered copper and aluminum for anti-adhesion and bactericidal applications," *ACS Applied Bio Materials*, **2** (7), 2726-2737, 2019.
19) X. Yan, Z. Huang, S. Sett, J. Oh, H. Cha, L. Li, L. Feng, and N. Miljkovic, "Atmospheric-Mediated Superhydrophobicity of Rationally Designed Micro/Nanostructured Surfaces," *ACS Nano*, **13** (4), 4160-4173, 2019.
20) H. Cha, A. Wu, M.-K. Kim, K. Saigusa, A. Liu, and N. Miljkovic, "Nanoscale-Agglomerate-Mediated Heterogeneous Nucleation," *Nano Letters*, **17** (12), 7544-7551, 2017.
21) H. Cha, J. M. Chun, Y. Xu, and N. Miljkovic, "Focal Plane Shift Imaging for the Analysis of Multi-Droplet Jumping," *Journal of Heat Transfer*, **139** (2), 020903, 2017.
22) H. Cha, C. Xu, J. Sotelo, J. M. Chun, Y. Yokoyama, R. Enright, and N. Miljkovic, "Coalescence-induced nanodroplet jumping," *Physical Review Fluids*, **1** (6), 064102, 2016.
23) H. Cha, J. M. Chun, J. Sotelo, and N. Miljkovic, "Focal Plane Shift Imaging for the Analysis of Dynamic Wetting Processes," *ACS Nano*, **10** (9), 8223-8232, 2016.
24) S. Chavan, H. Cha, D. Orejon, K. Nawaz, N. Singla, Y.-F. Yeung, D. Park, D. H. Kang, Y. Chang, Y. Takata, and N. Miljkovic, "Heat Transfer through a Condensate Droplet on Hydrophobic and Nanostructured Superhydrophobic Surfaces," *Langmuir*, **32** (31), 7774-7787, 2016.
25) M.-K. Kim, H. Cha, P. Birbarah, S. Chavan, C. Zhong, Y. Xu, and N. Miljkovic, "Enhanced Jumping-Droplet Departure," *Langmuir*, **31** (49), 13452-13466, 2015.
26) J. Do, N. N. Chang, D. Estrada, F. Lian, H. Cha, X. J. Duan, R. T. Haasch, E. Pop, G. S. Girolami, and J. W. Lyding, "Solution-Mediated Selective Nanosoldering of Carbon Nanotube Junctions for Improved Device Performance," *ACS Nano*, **9** (5), 4806-4813, 2015.

BOOKS AND BOOK CHAPTERS

1) H. Cha, S. Sett, P. Birbarah, T. Gebrael, J. Oh, and N. Miljkovic, "Recent Advances in Structured-Surface-Enhanced Condensation Heat Transfer," *Nanoscale Energy Transport: Emerging phenomena, methods and applications*, Chapter 13, IOP Publishing, 2020.

PAPERS AND PRESENTATIONS IN REFEREED CONFERENCE PROCEEDINGS

1) H. Cha, M.-K. Kim, H. C. Chang, L. Zhang, and N. Miljkovic, "Pinning-Induced Microdroplet Self-Propulsion," Proceedings of the 2023 Micro Flow and Interfacial Phenomena Conference, Evanston, Illinois, June 18-21, 2023.
2) H. Cha, Y. Song, Y. Zhong, S. Deshpande, W. Stephenson, Y. Zhang, J. Leonard, T. Broderick, and E. N. Wang, "Machine Learning Assisted Models for Understanding and Optimizing Boiling Heat Transfer on Scalable Random Surfaces," Proceedings of the 2022 Materials Research Society (MRS) Fall Meeting & Exhibition, Boston, Massachusetts, November 27-December 2, 2022.
3) H. Cha, M.-K. Kim, H. C. Chang, L. Zhang, E. N. Wang, and N. Miljkovic, "Pinning-Induced Evaporating Droplet Self-Propulsion," accepted in 75th Annual Meeting of the American Physical Society's Division of Fluid Dynamics (APS DFD), Indianapolis, Indiana, November 20-22, 2022.
4) H. Cha, Y. Song, Y. Zhong, S. Deshpande, W. Stephenson, Y. Zhang, J. Leonard, T. Broderick, and E. N. Wang, "Machine Learning Assisted Models for Understanding and Optimizing Boiling Heat Transfer on Scalable Random Surfaces," The ARPA-E Energy Innovation Summit, Denver, Colorado, May 23-25, 2022.
5) Y. Song, H. Cha, Z. Liu, J. H. Seong, L. Zhang, D. J. Preston, and E. N. Wang, "Alteration in Pool Boiling Heat Transfer of Metallic Surfaces by Oxidation during Boiling" Proceedings of the 7th Thermal and Fluids Engineering Conference, Las Vegas, NV, May 15-18, 2022, 2022.
6) Y. Song, C. D. Diaz-Martin, H. Cha, L. Zhang, and E. N. Wang, " Hierarchical microtube structures for pool boiling heat transfer enhancement" Materials Research Society Fall Meeting & Exhibit, Virtual, December 6-8, 2021.
7) H. Cha, Y. Song, Y. Zhong, M. Z. Wyttenbach, S. Deshpande, W. Stephenson, Y. Zhang, J. Leonard, T. Broderick, and E. N. Wang, "Machine Learning Assisted Models for Understanding and Optimizing Boiling Heat Transfer on Scalable Random Surfaces," Mechanical Engineering Research Exhibition, Massachusetts Institute of Technology, Cambridge, MA, October 8, 2021.
8) Y. Song, S. Gong, G. Vaartstra, H. Cha, and E. Wang, "Separation of Liquid and Vapor Paths During Pool Boiling on Hemi-Wicking Surfaces," Proceedings of the ASME Summer Heat Transfer Conference, Virtual, June 16-18, 2021.
9) H. Cha, Y. Song, Y. Zhong, S. Deshpande, W. Stephenson, Y. Zhang, J. Leonard, T. Broderick, and E. N. Wang, "Machine Learning Assisted Models for Understanding and Optimizing Boiling Heat Transfer on Scalable Random Surfaces," The ARPA-E Energy Innovation Summit, Virtual May 24-27, 2021.
10) H. Cha, M.-K. Kim, H. C. Chang, and N. Miljkovic, "Spontaneous Evaporation-Driven Droplet Sliding on Hydrophobic Surfaces", Proceedings of the Micro and Nanoscale Phase Change Heat Transfer Gordon Research Conference – The Effects of Hydrodynamic, Interfacial and Intermolecular Forces on Phase Change Processes, Lucca, Italy, February 3-8, 2019.
11) J. Ma, H. Cha, M.-K. Kim, D. Cahill, and N. Miljkovic, "The origins of condensation-driven degradation of hydrophobic thin films," Proceedings of the Micro and Nanoscale Phase Change Heat Transfer Gordon Research Conference – The Effects of Hydrodynamic, Interfacial and Intermolecular Forces on Phase Change Processes, Lucca, Italy, February 3-8, 2019.
12) H. Cha, H. Vahabi, A. Wu, S. Chavan, A. K. Kota, and N. Miljkovic, "The Role of Surface Wettability on Dropwise Condensation," Proceedings of the 6th Micro and Nano Flows Conference, Atlanta, Georgia, September 9-12, 2018.
13) M.-K. Kim, E. C. Kim, J. Ahn, Y. S. Kim, H. Cha, and N. Miljkovic, "Condensation Limits on Biphilic Surfaces," Proceedings of the 6th Micro and Nano Flows Conference, Atlanta, Georgia, September 9-12, 2018.

14) X. Yan, F. Chen, S. Sett, L. Feng, J. Oh, H. Cha, L. Li, Z. Huang, N. Miljkovic, "Coalescence-Induced Droplet Jumping on Hydrophilic Nanoengineered Surfaces", Proceedings of the 16th International Heat Transfer Conference, Beijing, China, August 10-15, 2018.
15) A. Wu, H. Vahabi, H. Cha, S. Chavan, A. K. Kota, and N. Miljkovic, "Dropwise Condensation on Hydrophilic Surfaces," Proceedings of the 10th International Conference on Boiling and Condensation Heat Transfer, Nagasaki, Japan, March 12-15, 2018.
16) H. Cha, A. Wu, M.-K. Kim, K. Saigusa, A. Liu, D. Orejon, and N. Miljkovic, "Nanoscale-Agglomerate-Mediated Heterogeneous Nucleation," Proceedings of the 10th International Conference on Boiling and Condensation Heat Transfer, Nagasaki, Japan, March 12-15, 2018.
17) H. Cha, M.-K. Kim, J. Yang, A. Wu, and N. Miljkovic, "Spontaneous Evaporating Microdroplet Sliding on Hydrophobic Surfaces," Proceedings of the ASME Summer Heat Transfer Conference, Bellevue, Washington, July 9-14, 2017.
18) H. Cha, M.-K. Kim, S. Lee, A. Wu, and N. Miljkovic, "Agglomerate-Deposition-Mediated Heterogeneous Nucleation during Atmospheric Water Vapor Condensation," Proceedings of the ASME Summer Heat Transfer Conference, Bellevue, Washington, July 9-14, 2017.
19) H. Cha, S. Lee, J. M. Chun, and N. Miljkovic, "Focal Plane Shift Imaging for the Measurement of Contact Angles," Proceedings of the ASME Summer Heat Transfer Conference, Bellevue, Washington, July 9-14, 2017.
20) A. Wu, H. Cha, N. Miljkovic, "Droplet Impact Induced Degradation of Hydrophobic Coatings," Proceedings of the ASME Summer Heat Transfer Conference, Bellevue, Washington, July 9-14, 2017.
21) H. Cha, C. Xu, J. Sotelo, J. M. Chun, Y. Yokoyama, R. Enright, and N. Miljkovic, "Nanodroplet Jumping on Superhydrophobic Surfaces," Proceedings of the Micro and Nanoscale Phase Change Heat Transfer Gordon Research Conference – Fundamental Mechanisms to Applications of Phase Change Heat Transfer, Galveston, Texas, January 8-13, 2017.
22) H. Cha, J. M. Chun, and N. Miljkovic, "Focal Plane Shift Imaging for the Analysis of Jumping-Droplet Condensation," Proceedings of the ASME Summer Heat Transfer Conference, Washington, DC, July 10-14, 2016.
23) H. Cha, C. Xu, J. M. Chun, M. Y. Ye, and N. Miljkovic, "Coalescence-Induced Water Nanodroplet Jumping on Superhydrophobic Surfaces," Proceedings of the ASME Summer Heat Transfer Conference, Washington, DC, July 10-14, 2016.
24) H. Cha, J. M. Chun, Y. Xu, and N. Miljkovic, "Multi-Droplet Coalescence-Induced Droplet-Jumping on Superhydrophobic Surfaces," Proceedings of the ASME Summer Heat Transfer Conference, Washington, DC, July 10-14, 2016.
25) H. Cha, J. M. Chun, J. Sotelo, and N. Miljkovic, "Focal Plane Shift Imaging for the Analysis of Jumping Droplet Condensation," Proceedings of the 17th International Symposium on Flow Visualization, Gatlinburg, Tennessee, June 19-22, 2016.
26) M.-K. Kim, H. Cha, Y. Xu, C. Zhong, and N. Miljkovic, "Enhancing the Coalescence-Induced Jumping Droplet Velocity via Multi-Droplet Coalescence," Proceedings of the International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems Conference, InterPACK2015, San Francisco, California, July 6-9, 2015.

TALKS AND SEMINARS

1) Industrial Advisory Board Meeting, Air Conditioning & Refrigeration Center, University of Illinois Urbana-Champaign, "Next Generation Durable Hydrophobic Surface," Urbana, IL, October 11, 2019.
2) Industrial Advisory Board Meeting, Air Conditioning & Refrigeration Center, University of Illinois Urbana-Champaign, "Durable Hydrophobic Surface," Urbana, IL, October 5, 2017.
3) Institute Interest Seminar Series, International Institute for Carbon-Neutral Energy Research, Kyushu University, "Nucleation Dynamics during Atmospheric Water Vapor Condensation on Hydrophobic Surfaces," Fukuoka, Japan, August 24, 2017.
4) Industrial Advisory Board Meeting, Air Conditioning & Refrigeration Center, University of Illinois Urbana-Champaign, "Durable Hydrophobic Surface," Urbana, IL, October 5, 2016.

TEACHING AND MENTORING EXPERIENCE

Teaching Experience

Department of Mechanical Engineering, MIT — Cambridge, MA

Guest Lecturer, 2.55 – Advanced Heat and Mass Transfer — Spring 2023
- Lecture on phase change heat transfer section to graduate class.

Laboratory Assistant Volunteer, — Fall 2022-Spring 2023
2.674/2.675 – Introduction to Micro/Nano Engineering Laboratory
- Covered concepts and enabling tools for nanoengineering through experiential lab modules.
- Developed a laboratory equipment and experimental protocols.
- Instructed laboratory sessions on 'Surface Engineering Using Soft Materials' to undergraduate/graduate students.

Department of Mechanical Science and Engineering, UIUC — Urbana-Champaign, IL

Teaching Assistant, ME 521 – Convective Heat Transfer — Spring 2017
- Covered fundamentals of convective heat and mass transfer including laminar and turbulent convection, internal and external convection, natural convection, and mass transfer.

Laboratory Instructor, ME 310 – Fundamentals of Fluid Dynamics — Fall 2015
- Covered theory and applications of incompressible viscous and inviscid flows, and compressible high speed flows.
- Led weekly basis laboratory sessions on fluid properties, centrifugal pump characterization, free air jet, pipe flow, design project, and cylinder in cross flow.

Teaching Assistant, ME 371 – Mechanical Design II — Spring 2015
- Covers design and analysis of machinery for load-bearing and power transmission.
- Led 4 laboratory classes on 3D finite element analysis, 1 laboratory session on bike power transmission, and 2 hands-on projects on beam failure analysis and mechanical battery system design.

Grader, ME 371 – Mechanical Design II — Spring 2014

Grader, TAM 210/211 – Statics — Fall 2013

Mentoring Experience

1) Amir J. White – Currently supervising undergraduate research as a part of the Undergraduate Opportunities Research Program (UROP) at the Massachusetts Institute of Technology (MIT) from September 2021.
2) Maya Padmini Kota – Supervised and advised on graduate research at MIT from September 2021 to May 2022. Maya is pursuing a M.Eng. degree in Mechanical Engineering at MIT. Maya is currently a manufacturing engineering at the Lawrence Berkeley National Laboratory.
3) Minna Wyttenbach – Supervised and advised on undergraduate research as a part of the UROP and B.S. thesis at MIT from January 2021 to May 2022. Minna is pursuing a Ph.D. degree in Mechanical Engineering at MIT.
4) Young Seong Kim – Supervised and advised on undergraduate research at the University of Illinois Urbana-Champaign (UIUC) from May 2019 to December 2019. Young Seong is currently pursuing a PhD degree in the Sibley School of Mechanical and Aerospace Engineering at Cornell University.
5) Rintaro Sato – Supervised and advised on research activities as a part of International Institute for Carbon-Neutral Energy Research undergraduate (I2CNER) exchange program from February 2019 to March 2019. Rintaro is pursuing a B.S. degree in the Department of Mechanical Engineering at Kyushu University.

6) Lucy Sun – Supervised and advised on undergraduate research at UIUC from January 2018 to May 2019. Lucy is currently pursuing graduate studies in the Department of Mechanical Science and Engineering at UIUC.
7) Alex Wu – Supervised and advised on graduate research from August 2016 to May 2018. Alex obtained a M.S. degree in Mechanical Engineering at UIUC. Alex is currently working for Samsara, Inc. as a software engineer.
8) Taeyang Kim – Supervised and advised on research activities as a part of I2CNER undergraduate exchange program from February 2018 to March 2018. Taeyang is currently pursuing graduate studies in the Department of Mechanical Engineering at Kyushu University.
9) Jiashuo Tong – Supervised and advised on undergraduate research at UIUC from August 2017 to January 2018. Jiashuo is currently pursuing graduate studies in the Department of Mechanical Science and Engineering at UIUC.
10) Diego G. Gundersen – Supervised and advised on undergraduate research at UIUC from August 2017 to May 2018. Diego is pursuing a Ph.D. degree in the Department of Aerospace and Mechanical Engineering at University of Notre Dame.
11) Eojin Kim – Supervised and advised on undergraduate research at UIUC in 2017. Eojin is currently pursuing a Ph.D. degree in School of Engineering and Applied Science and Department of Earth and Planetary Sciences at Harvard University.
12) Kosuke Saigusa – Supervised and advised on research activities as a part of I2CNER undergraduate exchange program from February 2017 to March 2017. Kosuke obtained B.S. and M.S. degrees in Mechanical Engineering at Kyushu University. He is currently working for Medmain Inc. as a co-founder/manager.
13) Qian Wang – Supervised and advised on undergraduate research in Aug 2015 to May 2016. Qian obtained a M.S. degree in Mechanical Engineering at Stanford University. He is currently working for NIO as a senior advanced driver-assistance systems (ADAS) software engineer.
14) Tomohiro Imazeki – Supervised and advised on research activities as a part of I2CNER undergraduate exchange program in February 2016 to March 2016. Tomohiro is currently pursuing graduate studies in the Department of Mechanical Engineering at Kyushu University.
15) Jae Min Chun – Supervised and advised on undergraduate research at UIUC from May 2015 to December 2016. Jae Min is currently working for Hyundai Motors as a mechanical engineer.

ACADEMIC AND PROFESSIONAL ACTIVITIES

Professional Society Memberships

American Physical Society
American Society of Mechanical Engineers
Materials Research Society

Referee for

Applied Sciences, 2020-present
Energies, 2020-present
International Journal of Heat and Mass Transfer, 2020-present
Joule, 2020-present
Langmuir, 2020-present
Nature, 2020-present
Proceedings of the National Academy of Sciences of the USA, 2021-present
Science Advances, 2020-present

SELCTED MEDIA COVERAGE

"MIT engineers design surfaces that make water boil more efficiently," D. L. Chandler, MIT News, New Atlas, July 12, 2022.

"New understanding of condensation could lead to better power plant condenser, de-icing materials," L. Yoksoulian, Illinois News Bureau, UIUC MechSE News, EurekAlert!, Science Daily, Phys.org, Bioengineer.org, AZoM, NCYT, January 23, 2020.

"PPG-MRL Graduate Research Assistantships Awarded to 3 Students," C. McCoy, MRL News, UIUC MechSE News, November 28, 2017.

"Four MechSE students selected for Mavis Future Faculty Fellowship," V. Holloway, **UIUC MechSE News**, September 22, 2017.

"Miljkovic group develops improved technique to optically image dynamic droplet processes," J. Cation, **UIUC MechSE News**, November 1, 2016.

"Electronic device performance enhanced with new transistor encasing method," A. Keating**,** Illinois News Bureau, UIUC ECE News, Communications of the ACM, Research & Development, Nanowerk, April 21, 2015.