Kelly Yi-Chun Huang

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May 2021 (expected)	PhD in Mech. Engineering	GPA 3.55	Princeton University
Jan 2018	MA in Mech. Engineering	GPA 3.55	Princeton University
Dec 2015	BS in Mech. Engineering	GPA 3.88	Cornell University

Research

Princeton University

2016 — present

As graduate student working with Dr. Marcus Hultmark, I currently

- fabricate nano-scale velocity and temperature sensors in the clean room,
- design and test data acquisition platforms for use in the field,
- analyze near-surface atmospheric velocity and temperature data, and
- design a low-cost active grid for studying mosquito tracking behavior.

Cornell University

2015 — 2016

As undergraduate research assistant to Prof. Charles Williamson, I designed, fabricated, and tested 3D-printed innovative blades for a mini vertical-axis wind turbine for urban settings.

2012 — 2014

In AguaClara sustainable water treatment design, I built and analyzed a lab-scale rapid sand filter and an electric-free ram pump.

2014 — 2015

As member of Cornell University Sustainable Design, we

- conducted a wind power feasibility study for the Cornell NYC campus,
- formulated a proposal for local wind turbine implementation, and
- constructed a functioning demonstrative wind turbine for outreach.

National Renewable Energy Laboratory

Summer 2015

As Science Undergraduate Laboratory Intern (SULI) to Dr. Katherine Dykes, I developed a Python toolbox coupled to OpenMDAO that optimizes the spar supporting structure of offshore wind turbines based on stability designs.

Honors and Awards

2020	Engineering Council's Excellence in Teaching Award	*Princeton*
2019	The Luigi Crocco Award for Teaching Excellence	*Princeton*
2017	National Defense Science and Engineering Graduate Fellowship	*DoD*
2016	Francis Robbins Upton Fellowship in Engineering	*Princeton*
2015	Undergraduate Student of the Year	*Cornell Diversity Programs in Engineering*

Teaching

Princeton University

2017 — present

As Graduate Coordinator for the McGraw Learning and Tutoring Center, I help manage the undergraduate tutoring program by interviewing, staffing, training, and providing feedback for 140+ tutors.

As assistant in instruction, I held weekly precepts/lab sessions for

Fall 2019
- MAE 305/ MAT 391 — Mathematics in Engineering I

Spring 2019
- MAE 222 — Introduction to Fluid Mechanics

Spring 2018
- MAE 224 — Integrated Engineering Science Laboratory

Fall 2017
- MAE 335 — Fluid Dynamics

Select Reviews:

—*"She always has a really great way of distilling and explaining the information from lecture in a way that was easier to digest."*

—*"Kelly Huang has been the best preceptor I have ever had at Princeton. Her precepts were clear and engaging. Her ability to teach the material is excellent and she is always available to answer any questions students have."*

Cornell University

As undergraduate teaching assistant, I held weekly recitations/lab sessions for

Fall 2015
- MAE 3230 – Introduction to Fluid Mechanics

Fall 2015
- MAE 6510 – Advanced Heat Transfer

Spring 2015
- MAE 2250 – Mechanical Synthesis

Fall 2014
- ENGRD 2020 – Statics and Mechanics of Solids

Outreach

Princeton University

2016 – present

As part of MAE department educational outreach efforts, I
- undertook coursework on effective science pedagogy for children,
- developed workshops on engineering concepts, and
- led demos for K-8 children from Princeton and New York City.

2017 – 2020

As representative, then Chair, of the MAE Graduate Student Council, I
- organized graduate student events (ie open-house and alumni panels),
- organized and hosted the annual MAE Research Day, and
- designed T-shirts and paraphernalia for such events.

2020

For completing workshops related to diversity and inclusion, I obtained the Inclusive Leadership Learning Cohort Co-Curricular Certificate.

Publications

K. Y. Huang, C. E. Brunner, M. K. Fu, K. Kokmanian, T. Morrison, A. O. Perelet, E. Pardyjak, and M. Hultmark, "Investigation of the atmospheric surface layer using a novel high-resolution sensor array", *Experiments in Fluids* (under review).

K. Y. Huang, G. G. Katul, and M. Hultmark, "Velocity and Temperature Dissimilarity in the Surface Layer Uncovered by the Telegraph Approximation", *Boundary Layer Meteorology* (under review).

Select Presentations

Huang, K. Y., From Mosquitos to Weather Models — Understanding Turbulence in the Lower Atmosphere, *Cooper Union* (2020). Guest Lecture.

Huang, Y., Katul, G., and Hultmark, M., Velocity and Temperature Dissimilarity in the Surface Layer Uncovered by the Telegraph Approximation, *American Geophysical Union: Fall Meeting* (2020). Poster.

Huang, Y., Brunner, C., Pardyjak, E., and Hultmark, M., Simultaneous and Well-resolved Velocity and Temperature Measurements in the Atmospheric Surface Layer, *American Geophysical Union: Fall Meeting* (2018). Poster.

Huang, Y., Vickers, N., and Hultmark, M., Mimicking Atmospheric Flow Conditions to Examine Mosquito Orientation Behavior, *American Physical Society: Division of Fluid Dynamics* (2018). Talk.

Huang, Y., Roth-Robbins A., and Williamson, C. H. K., Novel Blade Designs for Urban Mini-Turbines, *Cornell Atkinson Center: Creating a Sustainable Future* (2015). Pitch and poster.