

# MAX THRUSH HUKILL

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[HTTPS://GITHUB.COM/MHUKILL/MAX\\_HUKILL.CV](https://github.com/mhukill/MAX_HUKILL.CV)

## EDUCATION

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**Bowdoin College**, Brunswick, ME Expected May 2021 Expected May 2021  
*Bachelor of Arts, Majors:* Mathematics, Biochemistry **GPA:** 3.93/4.00  
*Relevant coursework:* Advanced Probability and Statistics; Real Analysis; Chemical Thermodynamics and Kinetics;  
Biomimetic and Supramolecular Chemistry; Biochemistry; Health, Culture, & Society; Advanced Spanish  
*Awards:* Sarah and James Scholar, Faculty Scholar, Surdna Research Fellowship  
*Honors Project:* Computational Bayesian inference in bumblebee ethology

**School for Field Studies**, Puerto Natales, Chile Jan – Mar 2020  
*Study abroad program. Coursework:* Climate Science, Patagonian Ecology, Socio-Political Dimensions of Conservation.

## RESEARCH EXPERIENCE (SEE GITHUB)

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**Mathematics Dept. and Ecology Dept. collaboration, Bowdoin College**, Brunswick, ME Mar 2020 – present  
*Student Researcher & Honors Project on Bumblebee Behavior; data from Patty Jones, PhD; Advisor: Jack O'Brien, PhD*

- Developed computational Bayesian statistical model for data describing bumblebee behavior
- Engineered a hierarchical regression scheme in R for novel inference of a complex array of biologically pertinent parameters
- Implemented both discrete- and continuous-time Markov chain representations of the state space, using Metropolis-Hastings and Markov chain Monte Carlo techniques for inference
- Conducted thorough simulation studies and proof-of-concept checks throughout
- Compared algorithm's performance to alternate approaches such as generalized-linear mixed models
- In the process of inferring experimentally specific parameters for publication

**Mathematics Dept. and Neuroscience Dept. collaboration, Bowdoin College**, Brunswick, ME Mar 2020 – present  
*Student Researcher on Cricket Behavior; data from Hadley Horsch, PhD; Advisor: Jack O'Brien, PhD*

- Designed a behavioral assay for cricket response to auditory stimulus
- Engineered a bioinformatic pipeline and developed novel metrics for analysis
- Developed visualization schemes for the data transformed by our pipeline
- Navigated data generated by DeepLabCut, an artificial intelligence engine in neuroethology
- Pipelines and analysis routine successfully described cricket responses, demonstrating the utility of the tools developed
- Collaborated with an interdisciplinary team to prepare our methodology for publication

**Kaiser Permanente Oakland Hospital, Perioperative Clinic**, Oakland, CA Summer 2019  
*Quality Improvement Research Intern, Advisors: Renuka Yeldandi, MD, Stephen Sarafian, MD*

- Led project seeking to improve patient care experience through early educational intervention on post-operation delirium
- Conducted extensive interviews with patients and health care providers
- Administered Mini-Cog exams and delirium education to patients
- Developed workflow for the clinic
- Over 80% of patients followed throughout the study reported that the program actively added value to their care experience
- Presented findings and workflow framework to hospitalist physicians and the perioperative clinic staff
- Recommendations currently being implemented region-wide

**Chemistry Dept., Bowdoin College**, Brunswick, ME Aug – Dec 2019  
*Student Researcher, Advisor: Benjamin Gorske, PhD*

- Using solution-phase organic chemistry, designed, synthesized, and analyzed biomimetic thiopeptoids targeting the WW binding domain relevant to cancer and Alzheimer's pathways
- Applied theory of  $n \rightarrow \pi^*$  interactions to design peptoid foldamers mimicking naturally occurring peptides
- Conducted sequential solution-phase steps to create and purify target molecules

**Kaiser Permanente Oakland Hospital, Hospital-Based Medicine**, Oakland, CA Summer 2018  
*Research Intern, Advisors: Yu-Te Lee, MD, Loveleena Virk, MD*

- Collaborated with hospitalists and LEAN Methodology project managers to increase hospital discharge efficiency
- Interviewed patients and hospital staff to develop "The Discharge Card," a patient-education and hospital efficiency tool in various cycles

- Balanced concerns of patients with those of the hospital staff to ensure the product added value to both the patient care experience and hospital administration
- Over 75% of patients in pilot program felt the card actively improved various aspects of their hospital stay
- Presented findings and recommendations to the Dept. of Hospital Based Medicine at KP Oakland

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### TEACHING EXPERIENCE

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**Community United Elementary School**, Oakland, CA

Sep 2020 – Present

*Zoom 1-on-1 Tutor*

- Mentored and tutored Spanish-speaking fourth grader in her online coursework
- Tailored lesson plans and sessions to her needs, focusing on communication skills
- Encouraged a positive learning environment that reconciled student's needs with teachers' objectives

**Bowdoin College**, Brunswick, ME

Sep 2019 – Dec 2019

*Calculus Teacher Assistant, Instructor: Naomi Tanabe, PhD*

- Orchestrated weekly review sessions for students of integral calculus
- Prepared and presented material to and for students
- Cultivated an atmosphere of collaboration in the classroom
- Interfaced with students and professor to create optimal learning plans

**REAL School**, Brunswick, ME

Sep 2018 – Dec 2019

*Community Mentor and Tutor*

- Assisted middle/high school for nontraditional students with special needs, mental health barriers, histories of trauma
- Fostered passion-driven educational curricula, emphasizing student-based inquiry into natural sciences
- Mentored outside of academics, focusing on restorative learning, emotional vulnerability, and mutual respect

**Cook! Culinary Programs**, Emeryville, CA

Summers of 2013 – 2017

*Cooking Instructor, Head Intern*

- Cooked and cleaned in a commercial catering kitchen, working alongside award-winning chefs and bakers
- Instructed students on culinary techniques and kitchen management, working in both individual and group settings
- Trained and supervised other interns, responsible for overall order and flow of the kitchen

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### LEADERSHIP AND CO-CURRICULARS

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**Bowdoin Bridge Club**, Brunswick, ME

Sep 2018 – Present

*Club co-leader and co-founder*

- Organized weekly bridge card games, coordinating between schedules of student and local coach
- Taught foundational bridge principles to newcomers, and designed lessons with coach and co-leader
- Advertised club to students and managed bureaucratic obligations

**Weekly Movie Nights**, Brunswick, ME

Mar 2018 – present

*Organizer*

- Balanced interests of 10 regular attendees, selecting films of interest and import
- Held post-viewing discussions

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### PRESENTATIONS AND POSTERS

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- M.Hukill, R. Yelandi MD, J. Thrush MD, S. Sarafian MD. *The Delirium Screening and Education Program improves patient care experience in the perioperative medicine clinic*. Poster presented at: KP East Bay Academy of Medical Educators Research & Scholarship Symposium (2019), Oakland, CA.
- M.Hukill, M.Hutheeing, Y. Lee MD, C. Vijay MD, L. Virk MD. *Impact of a communication tool on patient care experience of hospital discharge: a thematic analysis of patient care education and agency in the discharge process*. Poster presented at: KP East Bay Academy of Medical Educators Research & Scholarship Symposium (2018), Oakland, CA.

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### SKILLS AND HOBBIES

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**Language skills:** Spanish (fluent), English writing coach

**Computer skills:** R statistical software, LaTeX (advanced); Microsoft Office (proficient); Stan, Mathematica, MATLAB (exposure)

**Hobbies:** Classical piano, cinema, videogames, reading, board/card games, swimming, tennis, hiking