Michael (Mike) Stanley

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Education

- **Carnegie Mellon University** — Pittsburgh, PA
  PhD Student in Statistics, M.S. - Statistics — *Aug 2019 - Present/Aug 2015 - May 2016*
- **Baylor University** — Waco, TX
  B.S. - Mathematics, Minor - French: GPA: 3.99/4.00 — *May 2015*

Professional and Research Experience

- **Carnegie Mellon University** — Pittsburgh, PA
  Primary research projects under Mikael Kuusela — *Aug 2019 - Present*
  - **Confidence intervals for ill-posed inverse problems via convex optimization**: Methodological development to optimize calibrated confidence intervals using physical constraints and/or priors. Lead author on the following pre-print: https://arxiv.org/abs/2111.01091.
  - **Uncertainty Quantification (UQ) for Carbon Flux Inversion**: Working with JPL collaborators analyzing current and developing new approaches to UQ for this application.
- **Jet Propulsion Laboratory (JPL)** — Remote
  Internship — *Jun 2020 - Aug 2020*
  - **Algorithm development for Decision Theoretic Uncertainty Quantification (DTUQ)**: Researched gradient-free optimization methods for DTUQ implementation. Co-authored on a resulting paper: https://arxiv.org/abs/2108.10517.
  - **Support for glacier scientists in application of DTUQ to ISSM model**: Assisted glacier scientists resulting in on-going collaboration.
- **tellic** — New York, NY
  Senior Data Scientist — *May 2016 - Jun 2019*
  - **Constructing NLP pipelines and infrastructure**: Brought jupyter notebook code to production level quality with sound design and testing principles. Implemented a variety of text-based ML models to classify documents and tag text.
  - **Pharmaceutical experience**: Developed a base of knowledge for the pharmaceutical industry via working with data and regular communication with individuals in the field.

Technical Skills Summary

- **Computing**: Convex optimization and Monte Carlo sampling on large-scale computing systems
- **Modeling**: Standard ML algorithms, classical statistical models, inverse modeling
- **Programming**: Python (highly experienced), SQL (proficient), bash/PBS (proficient), R/fortran (working knowledge)

Grants and Presentations

- **JPL Strategic University Research Partnership**: Awarding yearly funding to facilitate the development and implementation of decision theoretic and optimization-based UQ for JPL applications, including remote sensing, carbon flux inversion, and glacier modeling.
- **SIAM UQ (Apr 2022)**: Session talk titled, "Optimizing Confidence Intervals for Satellite-Based Carbon Flux Inversion."
- **JSM (Aug 2021)**: Topic-contributed session talk titled, "Statistical issues in uncertainty quantification for satellite-based carbon flux inversion."
- **UQ for remote sensing and inverse problems (Oct 2020)**: Speed talk titled, "Quantifying carbon flux uncertainty - reproducing a UQ Monte Carlo algorithm as a reference point for frequentist model development."

Mentorship and Teaching

- **Teaching Assistant (Fall 2019 to Present)**: Led recitations, graded homework, organized TA schedules, hosted office hours, and developed custom software to streamline grading.
- **Corporate Capstone Advisor (Fall 2019)**: Advised a group of four students for an undergraduate research project with Principal Financial Group to forecast fixed-income market conditions.
- **Data Science Summer Camp Lead Instructor (Summer 2022)**: Developed and led a week-long data science summer camp to expose local high school students to a career in data science, including lectures and interactive coding activities.

Other Skills and Experience

- **Musician (primarily electric bass)**
  Played and recorded with several groups in NYC including a regular jazz gig at the Harvard Club.
- **Collegiate Athlete**
  Division 1 Cross Country and Track — *Aug 2011 - Sept 2012*
- **International Experience**
  Lived with a Parisian family for a summer student abroad (2013)