MARCO VIERO, PH.D.

Scientist and Engineer

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github.com/marcoviero

SKILLS

Technical

- Programming
  - Python (expert)
  - SQL (advanced)
  - R (proficient)
  - Matlab (expert)
  - Excel (advanced)
  - C/C++ (proficient)
  - Julia (familiar)
- Tools
  - Git (advanced)
  - Docker (advanced)
  - Kubernetes (advanced)
  - Google Cloud (proficient)
  - Jira (advanced)
  - LLM (advanced)
- Analysis
  - Regression analysis (expert)
  - Time series analysis (expert)
  - Data visualization (proficient)
  - Hypothesis testing (familiar)
- Modelling
  - Machine learning (advanced)
  - Bayesian frameworks (proficient)
  - Classification (proficient)
  - Dimensionality reduction (proficient)

Communication

- Written: 80+ publications.
- Presented: 50+ talks at conferences/workshops.
- Shared: Public release of software package with over 120 citations.

Leadership

- Launched LIM Workshop Series
- Lead COMAP modeling group.
- Mentored graduate students.
- Agile team coordinator.

EDUCATION

Ph.D. in Astrophysics
University of Toronto

M.S. in Physics
University of Pennsylvania

B.S. in Mechanical Engineering
Cornell University

EXPERIENCE

Senior Data Scientist

Zelus Analytics

04/2023 - Ongoing Fully Remote

- Build physics-based models inferred from ball-flight properties.
- Developed change-point models connecting changes in performance to kinematics.
- Led productization of client-facing data products.

Senior Research Scientist

California Institute of Technology

01/2021 - 03/2023 Pasadena, CA

- Lead the SPHEREx space telescope detector calibration effort.
- Coordinated cross-disciplinary integration of focal plane array.
- Mentored development of Python software to drive instrumentation and collect data.

R&D Data Scientist

Wahoo Fitness

04/2018 - 12/2020 Atlanta, GA

- Embedded automatic calibration state machine on trainer firmware.
- Leveraged existing sensor data to replace hardware, saving ~5k/day.
- Implemented FIR, IIR, and Kalman filters to improve ride position data.

Kavli Fellow in Astrophysics

Stanford University

08/2014 - 04/2018 Palo Alto, CA

- Recognized leader in the nascent field of Line-Intensity Mapping.
- Lead Hershel/South Pole Telescope joint analysis modeling cross-correlations.

Postdoctoral Scholar

California Institute of Technology

07/2010 - 08/2014 Pasadena, CA

- Pioneered multi-disciplinary approach employing statistical techniques (cross-power spectra, covariances) on noisy data.
- Lead *Herschel Space Telescope* Large Mode (HeLMS) and Stripe 82 (HerS) Surveys.
- Released **SIMSTACK** stacking code (Github): is now standard software in the field.

MOST PROUD OF

- Launching an International Workshop Series on Line-Intensity Mapping.
- Designing the Parlee Z1/2/3 carbon fiber road bike frame .
- Being Awarded time by NASA to Lead two Space-Telescope Programs.
- Receiving the Kavli Fellowship at Stanford, which came with full autonomy.
- Taking the BLAST balloon telescope from initial design to Antarctic launch.
- Winning Two World Championships with the Cornell Formula SAE Team.