MARCO VIERO, PH.D.

Scientist and Engineer

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SKILLS

Technical

- Programming
  - Python (expert)
  - Matlab (expert)
  - SQL (advanced)
  - R (familiar)
  - Excel (advanced)
  - QT (proficient)
  - C/C++ (proficient)
  - Julia (familiar)
- Tools
  - Git (advanced)
  - Jupyter Lab (expert)
  - MCMC (advanced)
  - Tensorflow (proficient)
  - Jira/Shortcut (advanced)
- Analysis
  - Data cleaning (advanced)
  - Data visualization (proficient)
  - Hypothesis testing (familiar)
- Modelling
  - Bayesian frameworks (familiar)
  - Classification (proficient)
  - Dimensionality reduction (proficient)

Communication

- Written: 80+ publications.
- Presented: 50+ talks at conferences/workshops.
- Shared: Public release of software package used and cited over 30 times.

Leadership

- Launched LIM Workshop Series
- Lead COMAP modeling group.
- Mentored graduate students. providing guidance and co-authoring scientific papers.
- 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 Research Scientist

California Institute of Technology

01/2021 - Ongoing Pasadena, CA

- Leading the SPHEREx space telescope detector calibration effort.
- Coordinating cross-disciplinary integration of focal plane array.
- Mentoring development of Python lab software to drive instrumentation and collect data.
- Preparing/presenting weekly lab updates to larger science team.

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.
- Used 3D accelerometer data and machine learning techniques to classify swim strokes.

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.
- Lead modeling efforts, employing Bayesian parameter estimation on big-data sets.

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 Redshift Survey (HerS).
- Released 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 a Space-Telescope Program.
- 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.