Chia-Rui (Jerry) Chang

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Education

Harvard University, Graduate School of Arts and Sciences, Cambridge, MA May 2019 – Present

- Ph.D. Student in Biostatistics, Expected May 2024
- Research Advisor: Rui Wang

Duke University, Trinity College of Arts and Sciences, Durham, NC August 2014 - December 2018

- B.S. in Statistical Science, Minor in Computer Science
- Graduation with Distinction in Statistical Science
- Honors: The Julia Wilkinson Mueller Prize for Excellence in Music

Research Experience

Robust Weighting Method to Handle Multilevel Missing Outcomes in Cluster Randomized Trials

- Advisor: Rui Wang (Harvard University), May 2020 - Present
  - Developed weighting method to correct for bias in cluster randomized trials when outcome data is missing at both cluster-level and individual-level
  - The method protects against model misspecifcation through allowing specifications of multiple propensity score models

Covariate Adjustment in Randomized Controlled Trials with Missing Data

- Advisor: Fan Li (Duke University), September 2018 - December 2018
  - Conducted simulation studies to evaluate the impact of missing covariates on confounding/covariates adjustment in randomized controlled trials

FLAME: A Fast Large-scale Almost Matching Exactly Approach to Causal Inference

- Advisors: Cynthia Rudin, Alex Volfovsky (Duke University), May 2018 - December 2018
  - Developed an open-source R package to implement the FLAME algorithm
  - The FLAME algorithm addresses covariate imbalance in causal inference through leveraging machine learning models and database systems

Modeling Federal Employee Data to Predict Promotion

- Advisor: Jerome P. Reiter (Duke University), August 2017 – May 2018
  - Built a logistic regression model to predict federal employees' promotion outcome
  - Conducted missing data imputation in classification and regression tree and statistical inference with Bayesian methods

Distributed solar photovoltaic array location datasets for remote sensing object identification

- Advisors: Kyle Bradbury (Duke University), September 2015 – January 2016
  - Created open-source location datasets to address the gap in distributed solar photovoltaic (PV) arrays; dataset applications include training object detection and other machine learning algorithms that use remote sensing imagery
  - Acknowledged contribution for publication to *Scientific Data*

Working Paper

- Vittorio O., Neha G., **Chia-Rui C.**, Cynthia R., Sudeepa R., Alexander V., Pritam D., Marco M., and Tianyu W., "dame-flame and FLAME: Python and R Libraries Providing Fast Interpretable Matching for Causal Inference," *Journal of Machine Learning Research*, under review

Software and Technical Skills

FLAME

- FLAME is an R package that provides fast, large-scale, and almost-exact matching approach to causal inference
- CRAN download link: https://CRAN.R-project.org/package=FLAME

Technical Skills

- Advanced: R, Python
- Intermediate: Java, C, SQL

Honors and Awards

Graduation with Distinction in Statistical Science (2018)
Best Data Visualization, ASA DataFest @ Duke (2016)
The Julia Wilkinson Mueller Prize for Excellence in Music (2018)

- The Muller Prize is presented to a graduating senior for achievement in musical performance

Winner, Duke University Concerto Competition (2015 & 2018)

- Won the award with Chopin Piano Concerto No.2 in 2014 and Liszt Piano Concerto No.1 in 2018
- Performed with the Duke Symphony Orchestra and raised $40,000 for Duke University Hospital

Teaching Experience

Teaching Assistant

- STA 360/601: Bayesian Statistics, Fall 2018
    - Duke University Trinity College of Arts and Science. Instructor: Professor Alex Volfovsky
    - Held office hours and performed grading for course with first-year Ph.D. students
- STA 250/MATH 342: Mathematical Statistics, Spring 2018
    - Duke University Trinity College of Arts and Science. Instructor: Professor David Jones

Service and Other Activities

Peer Mentor, Harvard University Department of Biostatistics, March 2020 – Present

- Create a network of guidance, community, and support for incoming Ph.D. student

Member, Ensemble Hippocrates, March 2017 – December 2018

- Brought professional concert experiences to local nursing homes, senior centers, and other medical facilities in Durham, NC

Executive Vice President, Duke International Association, Fall 2014 – May 2018

- Supervised and led 40 team members to develop and execute projects addressing the needs of international community

- Impacted institutional decisions to move forwards on initiatives that improve resources for international students

Out for Undergrad Conference (O4U)

- Attended O4U Tech in 2016 and O4U Business in 2017

Previous Employment

Ernst & Young – Insurance and Actuarial Advisory Services,
Consulting Staff, February 2019 – July 2019;
Summer Consulting Intern, June 2017 – July 2017
*Cigna – Cigna Global Health Benefits***,** Summer Actuarial Analyst, June 2016 – August 2016
*1000 Friends of Oregon***,** DukeEngage Intern, June 2015 – August 2015