Osman Chaudhary (857) 234 - 9307 chaudhary.oac@gmail.com

illesial.github.io

Summary:

Experienced, versatile quantitative researcher with active research agenda seeks to contribute Data Science, Machine Learning, and Quantitative Research skills to private sector organization.

Education:

Ph.D., Mathematics, Boston University, May 2017.

- Advisor: C. Eugene Wayne.
  - Thesis title: “Rigorous Justification of Taylor Dispersion via Center Manifold Theory.”

Quantitative Research Experience:

- **Applied Mathematics research.** Over 10 years experience in applying dynamical systems techniques to problems in a variety of fields including fluid mechanics, mathematical biology, and celestial mechanics. Peer-reviewed contributions to the literature include linear- and non-linear dimension reduction techniques reminiscent of Principal Components Analysis and Manifold Learning – 2009 through present.
- **Data Science.** Approximately 2 years experience in Data Science work on several successful New York electoral campaigns, and coursework from Datacamp.com. Contributions include data mining, cleaning, SQL querying, machine learning and deep learning classification and regression models, geographical analysis and visualization using Python tools such as pandas, Google cloud, bigquery, docs, and gmail APIs, numpy, Selenium, BeautifulSoup, scikit-learn, keras, geopandas, Hadoop and more. September 2017 through present.

Selected Publications:

- Rigorous Justification of Taylor Dispersion via Center Manifolds and Hypocoercivity, with Margaret Beck and Gene Wayne. Archive for Rational Mechanics and Analysis, August 2019.
- Analysis of Enhanced diffusion in Taylor dispersion via a model problem, with Margaret Beck and Gene Wayne. Fields Institute Communications, Hamiltonian Partial Differential Equations and Applications. Springer-Verlag, New York (2015).
- The Stubborn Roots of Metabolic Cycles, with Ed Reznik and Alex Watson. Journal of the Royal Society Interface (2013), volume 10 no. 83.

Employment:

- **Data Scientist**, Tiffany Caban for Queens DA campaign, July - August 2019. Tasks include automating voter data collection for campaign recount legal effort, predictive voter modeling, and geographical analysis of recount data using Python web scraping, GIS, machine-learning, and Airtable.
- **Instructor / Tutor**, Multiple Agencies: Five Points Learning, Gaver & Magariel LLC, and Wallace Tutors. September 2018 to present. Teaching and tutoring individuals and classes in a wide range of mathematics topics including SHSAT and SAT test prep, Calculus, Statistics, Linear and Abstract Algebra.

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- **Math Teacher**, Pikesville High School, Pikesville, MD. – Fall 2017 to June 2018. Responsibilities included lead-teaching and co-teaching mathematics for grades 9 – 12 in a wide variety of classroom environments and class sizes. Math club advisor.
- **Lecturer and Teaching Fellow,** Boston University – Fall 2010 to Summer 2017. Taught 800+ students in college math courses ranging from statistics through multivariable calculus and differential equations.