Michael Vaiana

Resumé

"If nature were not beautiful, it would not be worth knowing and life would not be worth living." - Henri Poincaré

Experience

2018-Present **Artificial Intelligence Developer**, *M&T Bank*, Buffalo, NY.

- Developed state-of-the-art transformer based NLP model to monitor regulatory risk associated to customer complaints which improved key metrics associate to risk and cost of review.
- Developed end-to-end real-time AI fraud detection system which is operational 24/7, processes millions of transactions per month, and has been proven to reduce fraud by 30%.
- Developed an ML NLP model for automatic topic extraction from customer feedback.
- Wrote a mathematical white-paper on the nature and risk of a particular class of financial derivatives
- Developed an ML interest rate forecasting model used for regulatory reporting.

2017 Summer **Intern**, *Sandia National Laboratory*, Livermore, CA.

2016 Summer **NAND Fellow**, *Princeton University*, Princeton, NJ.

Education

2014–2018 **PhD in Computational Data Science**, *University at Buffalo*, *3.9/4.0*.

2012–2014 **Masters in Mathematics**, *University at Buffalo*, *3.9/4.0*.

2010–2012 **B.A. Mathematics**, *SUNY Geneseo*, *3.9/4.0*.

Patents

2020 **Provisional Patent Filing**, *M&T Bank*.
AI Powered real-time fraud detection system

Skills

Python, PyTorch, TensorFlow, Scikit-Learn, Pandas, SQL, Git

Leadership

2019-Present **Founder and Chair**, *Machine Learning Working Group*, M&T Bank.

2018-Present **Co-Founder and Committee Member**, *Python Users Group*, M&T Bank.

2015-2017 **President**, *Mathematics Graduate Student Association*, University at Buffalo.

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Publications

2020 Interneuron desynchronization precedes seizures in a mouse model of Dravet syndrome *Journal of Neuroscience*

2019 Optimizing state change detection in functional temporal networks through dynamic community detection *Journal of Complex Networks*

2018 Resolution limits for detecting community changes in multilayer networks *arXiv preprint arXiv:1803.03597*

2018 Multilayer Brain Networks *Journal of Nonlinear Science*

2018 Integrating Network Science and Computational Topology with Applications in Neuroscience Data Analytics *Thesis*

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