Benjamin Fattori

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Canada
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EDUCATION

Honours Bachelor of Science 2015 - 2020
University of Toronto
Mathematics Specialist, Physics Major
CGPA: 3.30/4.00 - Distinction (3.63/4.00 past two years)

RESEARCH EXPERIENCE

Undergraduate Research Assistant March, 2019 - June, 2019
Department of Mathematics, University of Toronto
Supervisor: Professor Adam Stinchcombe

· Helped design a novel model of oscillatory behaviour in the reward pathway of the mammalian brain
· Applied techniques learned in differential equations and math modelling courses
· Used MATLAB and XPPAUT to analyze the behaviour of the system

IN PREPARATION

A Model of the Dopamine Regulated Circadian Oscillator
Adam. R. Stinchcombe, Martin Ralph, Cameron Martin, Benjamin Fattori

TALKS GIVEN

· *The Density of Discriminants of Quartic Rings and Fields* November 2019
MAT477: Introduction to Arithmetic Invariant Theory, University of Toronto
· *Rings and Ideal Parametrized by Binary n-ic forms* October 2019
MAT477: Introduction to Arithmetic Invariant Theory, University of Toronto
· *Computing the K-Theory of* $C(\mathbb{R}P^2)$ February 2019
George Elliott's K-theory for C^*-algebras course University of Toronto

FURTHER EDUCATION

Applied Machine Learning in Python July 2020
University of Michigan, Coursera Course
Worked with many popular machine learning models using various Python libraries (e.g. Scikit-learn, Numpy, Pandas, and Matplotlib)

COMPUTER SKILLS

· **Python**: Experienced; Used alongside Scikit-learn and NumPy, in computational physics courses, mathematics courses and pure CS courses
· **MATLAB**: Experienced; Used in applied math research for simulations, implementing mathematical models and solving differential equations
· **PyTorch**: Experienced
· **XPPAUT**: Comfortable; Used in math research for producing bifurcation plots and further examining the behaviour of dynamical systems
· **LaTeX**: Experienced; Used for typesetting course notes and problem sets since third year