Eryk **Banatt**

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Experience

The Johns Hopkins University Applied Physics Lab   *Laurel, MD*
ARTIFICIAL INTELLIGENCE RESEARCH SCIENTIST   *April 2019 - Present*

- Evaluated and extended upon cutting edge machine learning techniques to solve sponsor-posed problems
- Trained highly performant models which were deployed in production environments
- Pitched, won, and PI'd two internal research grants together totaling $125k USD
- Developed novel algorithms for learning under domain shift, particularly in convolutional neural networks trained with synthetic data
- Uncovered fundamental properties of latent representations produced by state-of-the-art domain adaptation models
- Developed new methods for uncertainty estimation of black-box models using surrogate models and adversarial attacks
- Led teams of 3-5 people on multiple efforts to perform fundamental research supporting large projects

Miami International Holdings Inc.   *Princeton, NJ*
JUNIOR TRADING OPERATIONS SUPPORT SPECIALIST   *October 2017 - March 2019*

- Wrote regression test cases to debug functionality in exchange matching engine software
- Wrote VBA Macros in Microsoft Excel to facilitate creation and curation of regression test cases

Education

Johns Hopkins University   *Baltimore, MD*
M.S. IN ARTIFICIAL INTELLIGENCE   *August 2021 - Current*

- Currently pursuing a masters degree in Artificial Intelligence

Yale University   *New Haven, CT*
B.A. IN COGNITIVE SCIENCE   *August 2013 - May 2017*

- Concentration: Expertise and Expert Performance

Projects

Melee Stats
CREATIVE DIRECTOR   *February 2020 - Present*

- Creative Director for Melee Stats esports content creation team
- Write, edit, and produce for YouTube channel with 20k+ subscribers and 1.5M+ views
- Create freelance esports content for organizations such as the Golden State Warriors and Panda Global

planetbanatt.net
PORTFOLIO WEBSITE   *June 2016 - Present*

- Static website with Bootstrap frontend generated via emacs org mode html export
- Hosts write-ups for projects listed below + others, see: planetbanatt.net/projects.html

Auto-Rating ITG Stamina Charts with Machine Learning
BLOGPOST   *October 2022*

- Automatically rated stamina charts from popular arcade rhythm game In The Groove / Stepmania using various machine learning techniques
- Trained classical ML architectures (Linear Regression, k-Nearest Neighbors, Support Vector Machines) as well as sequence-to-one models (LSTM, RNN)

Input Latency Perception in Expert-Level Gamers
SENIOR THESIS PROJECT   *May 2017*

- Programmed a double-blind input latency perception task using an Arduino microcontroller
- Demonstrated a statistically significant ($p=0.0008$) difference in perceptual ability between control and expert video game competitors

Skills and Coursework

Skills	Python, Pytorch, Keras, Tensorflow, scikit-learn, Pandas, R, Emacs, Git, SQL/SQLite, LaTeX, Davinci Resolve Studio 17
Coursework	Artificial Intelligence, Language and Computation, Intelligent Robotics, Computational Vision & Biological Perception, Algorithms, Data Structures, Linear Algebra, Multivariable Calculus & Complex Analysis, Applied Machine Learning, AI-Enabled Systems
Research	Synthetic Data, Domain Adaptation, Adversarial Attacks, Active Learning, Label Prioritization, Object Detection, Semantic Segmentation, Semi-Supervised Learning, Uncertainty Estimation, Depth Estimation, Occlusion Reasoning