

Dzung V. Pham

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| CONTACT INFORMATION | 1120 8th Ave Apt. 2004 Seattle, WA 98101 USA | <i>Mobile:</i> (+1) 413-629-9759 <i>E-mail:</i> dzungvpham@gmail.com <i>Website:</i> dzungvpham.github.io |
| EDUCATION | B.A. in Computer Science & in Statistics (with Honors) June 2020 Williams College, Williamstown, MA, USA Thesis: <i>Exploring Variable Importance with Stacked Models</i> . Advisor: Prof. Richard D. De Veaux Honors: Magna cum laude (GPA: 3.90/4.00), Sigma Xi, Phi Beta Kappa, Mu Sigma Rho Awards: Recipient of the 2019 Ward Prize for Best Project in Computer Science. | |
| RESEARCH INTERESTS | I am interested in the design and implementation of adversary-robust AI/ML algorithms and systems that can be practicably applied to solving real-world problems including (but not limited to) e-commerce/financial fraud detection, cybersecurity, misinformation, etc. | |
| RESEARCH EXPERIENCE | Exploring Variable Importance with Stacked Models - Senior Thesis - Williams College In this thesis, I investigated the robustness of variable importance measures from stacked models to see if they are less susceptible to overestimating unimportant signals than the base models that form the stack. I focused on two model-agnostic methods, namely permutation importance and Sobol indices. From an empirical evaluation via simulation (leveraging the H2O's AutoML framework and Williams College's HPC clusters), I observed that the diversity of the base models played an important role in the quality of the stacked model's variable importance. The thesis was done under the supervision of Prof. Richard De Veaux and is available at https://unbound.williams.edu/theses/islandora/object/studenttheses%3A1655 . Fall Detection - Independent Research Project - Williams College Winter 2019 Inspired by recent research in video understanding, I designed and trained a two-stream convolutional neural network with transfer learning from MobileNetV2 to detect people falling in video input using Keras, TensorFlow and OpenCV. To achieve real-time inference, I replaced the optical flow stream with a Motion History Image stream. The project won the 2019 Ward Prize for Best Project in Computer Science at Williams College. Code is available at github.com/dzungvpham/fall-detection-two-stream-cnn . SWELL - Research Assistant - Williams College 2018 - 2019 SWELL is an original education-focused programming language/interface that incorporates prodirect manipulation – a bidirectional link between source code and outputs. This allows the user to reason about the code by directly manipulating program outputs, which can in turn update the code itself. SWELL is available at http://swell-lang.org . Working as an RA with Prof. Dan Barowy, I: <ul style="list-style-type: none">• Designed and implemented major parts of the language including the parser, interpreter, abstract syntax tree as well as the web programming user interface.• Taught the language to 5th-grade students at Williamstown Elementary School and helped analyze the collected data to evaluate the language's effectiveness in teaching beginners how to code. | |

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| PROFESSIONAL EXPERIENCE | Facebook Inc., Seattle, WA, USA <i>Software Engineer – Machine Learning</i> Aug 2020 - Present I use Machine Learning to protect users on Facebook Marketplace from bad actors. This is an e-commerce platform that connects tens of millions of people everyday by providing a convenient method to discover, sell and buy all sorts of items. Given its massive user base, Marketplace attracts many malicious actors who in fraudulent or abusive activities. As an ML Engineer, my main responsibilities include: <ul style="list-style-type: none"> • Train and apply a variety of ML models (e.g., deep neural nets, gradient-boosted trees) to identify bad actors quickly and consistently while minimizing harm to good users. • Develop new features that can help detect malicious behaviors. • Build and maintain a scalable detection and enforcement infrastructure that can support billions of interactions across multiple commerce surfaces daily. | |
| TEACHING EXPERIENCE | Teaching Assistant, Williams College 2017 - 2020 Responsibilities: Grade assignments, hold office hours, help prepare problems and solutions. Courses: <ul style="list-style-type: none"> • STAT 442: Statistical Learning & Data Mining • STAT 346: Regression & Forecasting • CSCI 334: Principles of Programming Languages • CSCI 256: Algorithm Design & Analysis • CSCI 237: Computer Organization • CSCI 136: Data Structures & Advanced Programming • CSCI 134: Introduction to Computer Science | |
| PUBLICATIONS | Quan Do, Kiersten Campbell, Emmie Hine, <u>Dzung Pham</u> , Alex Taylor, Iris Howley, Daniel Barowy. “Evaluating ProDirect Manipulation in Hour of Code”. In <i>Proceedings of the 2019 ACM SIGPLAN SPLASH-E Symposium (SPLASH-E’ 19)</i> , Athens, Greece, October 2019. | |
| SERVICES | Computer Science Student Advisory Committee, Williams College 2018 - 2019 Organized the first mock tech interview program in the Computer Science department at Williams College to help fellow students apply for software engineering jobs in the tech industry. | |
| TECHNICAL SKILLS | Languages: C/C++, Python, Java, JavaScript, PHP, SQL, R, Haskell Libraries/Frameworks: PyTorch, TensorFlow, Keras, OpenCV, CUDA | |
| REFERENCES | <div> Prof. Richard D. De Veaux Senior Thesis Adviser Math & Stats Department, Williams College <i>E-mail:</i> rdeveaux@cs.williams.edu </div> <div> Prof. Daniel W. Barowy Computer Science Department, Williams College <i>E-mail:</i> dbarowy@cs.williams.edu </div> <div> Pamela Bhattacharya, Ph.D. Engineering Manager Facebook, Inc. <i>E-mail:</i> pamelabh@fb.com </div> <div> Prof. Duane A. Bailey Computer Science Department, Williams College <i>E-mail:</i> bailey@cs.williams.edu </div> | |