

# Tianyue H. Zhang

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## Education

- Sept. 2023 - Present      **Mila/Université de Montréal**  
*Ph.D. Computer Science*  
Supervised by Dr. Simon Lacoste-Julien
- Sept. 2021 - Sept. 2023      **University of British Columbia - 95.3%**  
*M.Sc. Computer Science, Lab of Computational Intelligence*  
Supervised by Dr. Mark Schmidt
- Sept. 2015 - Sept. 2019      **University of British Columbia - Major 87.3%**  
*B.Sc. Combined Honours in Computer Science and Mathematics*  
Graduated with Distinction

## Publications

- UAI 2024 (In submission)      **Efficient and Adaptive Posterior Sampling Algorithms for Bandits**  
*B. Hu, Z. Zhang, T. Zhang, M. Lecuyer, N. Hegde*
- ICML 2024 (In submission)      **On PI Controllers for Updating Lagrange Multipliers in Constrained Optimization**  
*J. Gallego-Posada, M. Sohrabi, J. Ramirez, T. Zhang, S. Lacoste-Julien*
- Neurips Opt 2023      **From 6235149080811616882909238708 to 29: Vanilla Thompson Sampling Revisited**  
*B. Hu, T. Zhang*
- UAI 2023      **Optimistic Thompson Sampling for Episodic Reinforcement Learning**  
*B. Hu, T. Zhang, N. Hegde, M. Schmidt*

## Thesis

- Master's Thesis      **Optimistic Thompson Sampling: Strategic Exploration in Bandits and Reinforcement Learning**  
*UBC · Department of Computer Science*  
Supervisory committee: Dr. Mark Schmidt and Dr. Mathias Lecuyer

## Scholarships and Awards

- 2023      **Professor Cho Diversity Scholarship, \$1500**  
- Mila students from under-represented region
- 2022      **UBC Cloud Innovation Center Fellowship, \$20000**  
- Assistantship and scholarship funding based on academic performance and experience
- 2019      **NSERC Undergraduate Student Research Award, \$6000**  
- Awarded to students demonstrating exemplary qualities for research in natural sciences
- 2018      **UBC Faculty of Science International Student Scholarship, \$10000**  
- Awarded to students demonstrating strong academic achievement, engagement in the faculty, and potential to make scholarly contributions within their chosen field of study
- 2016, 2017, 2018, 2019      **UBC Science Faculty Dean's Honour List**  
- Awarded to students maintaining an academic average above 80%
- 2015      **UBC Outstanding International Student Award, \$6000**  
- Entrance scholarship awarded to qualified students showing strength academically and displaying involvement outside of the classroom

## Teaching

- Sept. 2023 - Dec. 2023 **Graduate Teaching Assistant**  
*Mila/Polytechnique Montreal INF8245E - Machine Learning*
- Design and implement coding assignments in applied machine learning including backpropagation and optimization in multi-layer perceptron
  - Automate testing and grading for coding assignments
- Sept. 2021 - May 2023 **Graduate Teaching Assistant**  
*UBC · CPSC 532M/340: Machine Learning and Data Mining*
- Gave guest lectures on Deep Reinforcement Learning and Autonomous Driving
  - Hosted weekly tutorials on topics in algorithms for dimensionality reduction, nonlinear regression, classification, clustering, and unsupervised learning
- Jan. 2018 - Apr. 2018 **Undergraduate Teaching Assistant**  
*UBC · Math 152: Linear Systems*
- Designed and graded homework assignments and exam questions for 2D and 3D geometry, vectors and matrices, eigenvalues and vibration, physical applications
  - Hosted lab sessions to demonstrate computer solutions of large systems using MATLAB
- Sept. 2017 - Apr. 2018 **Undergraduate Teaching Assistant**  
*UBC · CPSC 121: Models of Computation*
- Hosted weekly tutorials on physical and mathematical structures of computation, sets and relations, and proof techniques
  - Directed weekly lab sessions on Boolean algebra and combinations logic circuits, functions and sequential circuits, finite state machines, and sequential instruction execution
- July 2017 - Aug. 2017 **Undergraduate Teaching Assistant**  
*UBC · Math 102: Integral Calculus*
- Graded homework assignments and exams on functions, derivatives, optimization, growth and decay, and discrete probability
- Jan. 2017 - Apr. 2017 **Mathematics Mentor**  
*Windermere Secondary School*
- Mentored around 25 high-school students with math or science homework

## Competitions

- Dec. 2018 **Putnam Competition, Mathematical Association of America**  
Ranked top 1500 in North America
- Sept. 2014 **Chinese Physics Olympiad (CPhO)**  
Guangdong provincial secondary prize

## Presentations

- Feb. 2024 **Understanding Adam the Optimization Algorithm**  
- Mila group presentation
- Aug. 2023 **Optimistic Thompson Sampling: Strategic Exploration in Bandits and RL**  
*UBC · Thesis presentation*
- Apr. 2023 **Deep exploration via randomized value function**  
*UBC · Reinforcement Learning Reading Group*
- Oct. 2022 **Language Models are Few Shot Learners (GPT-3)**  
*UBC · Machine Learning Reading Group*
- June 2022 **Active Learning and Image Segmentation**  
*UBC · Machine Learning Reading Group*
- Mar. 2022 **Oops I Took a Gradient: Scalable Sampling for Discrete Distributions**  
*UBC · Machine Learning Reading Group*
- Dec. 2021 **Understanding The Origins of Bias in Word Embeddings**  
*UBC · Machine Learning Reading Group*
- Dec. 2021 **Reinforcement Learning and Autonomous Driving**  
*UBC · CPSC 340: Machine Learning and Data Mining*
- Nov. 2021 **Probabilistic Topic Modeling**  
*UBC · CPSC 503: Computational Linguistics*

## Additional Work Experience

- May 2022 - Dec. 2022      **Research Developer**  
*UBC-AWS Cloud Innovation Center*
- Advised undergraduate students with machine learning knowledge to build an innovation dashboard for the Office of the Vice-President, Research and Innovation of UBC
  - Processed NSERC and CIHR data with AWS Glue Studio, developed a web application to display researchers' profiles and contributions to assist grant resource allocation
- Sept. 2019 - Apr. 2021      **Software Engineer**  
*Magnitude - Simba Technologies*
- Developed JDBC driver releases for Amazon Redshift Database using Java and SQL
  - Designed customer test packages and its website BigSight using React.js and HTML/CSS
  - Implemented installation package file directory and test automation Python scripts
- July 2018 - Aug. 2018      **Research Intern**  
*Bank of China International, London*
- Trained a US Treasury prediction model using linear regression, analyzed the company's earning calls, and composed financial reports on futures and options predictions
- May 2018 - June 2018      **Research Intern**  
*China CITIC Bank International Limited, Shanghai*
- Processed and analyzed companies' financial statement data, investigated backgrounds of their competitors, buyers, and suppliers and assessed future market value and risks
- July 2016 - Aug. 2016      **Customer Manager Intern**  
*Guotai Junan Securities Co., Ltd, Shanghai*
- Constructed personalized securities investment portfolios, calculated and visualized expected rate of return and risk levels

## Certificates

- Dec. 2018      **Instructional Skills Workshop Completion Certificate**  
*UBC Centre for the Integration of Research, Teaching, and Learning (CIRTL)*

## Volunteering and Extracurricular Activities

- Sept. 2023 - Present      Organization team for Women@Mila
- Dec. 2023      Student Volunteer in WiML
- Dec. 2023      Student Volunteer in Neurips 2023
- Aug. 2023      Student Volunteer in UAI 2023
- Jan. 2022 - Aug.2023      Member, UBC Mathematics of Information, Learning, and Data research group
- Sept. 2017 - Apr.2023      Representative, UBC Dance Horizon Club
- Apr. 2022      Volunteer, Graduate Student Orientation
- Dec. 2021      Student Reviewer, Graduate Recruiting Committee
- Sept. 2015 - Apr. 2019      Member, UBC Math Club
- Sept. 2018      Volunteer, UBC Computer Science Tri-Mentoring Program
- Apr. 2017      Volunteer, Greater Vancouver Regional Science Fair (GVRSF) Lab Tour