

# Quan Nguyen

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## Research Interests

I am interested in probabilistic machine learning and decision-making under uncertainty using principled decision theory. Many such problems exist in active learning and in general sample-efficient experimental design, including Bayesian optimization, multi-armed bandits, and active search. I mainly develop budget-aware decision-making policies that approximate optimal decisions in a nonmyopic manner. My current work focuses on local Bayesian optimization of expensive blackbox objective functions.

## Education

2019 – present **Ph.D. in Computer Science**  
*Washington University in St. Louis, St. Louis, MO*  
Advisor: [Roman Garnett](#)

2015 – 2019 **B.A. in Computer Science and Mathematics**  
*DePauw University, Greencastle, IN*  
*summa cum laude* with highest honors, Minor in Philosophy  
Advisors: Khadija Stewart, Zhixin Wu, and Ashley Puzzo

## Work Experiences

Aug 2019 – present **Graduate Research Assistant** Washington University in St. Louis, MO  
*McKelvey School of Engineering*  
Our research focuses on probabilistic machine learning and experimental design using techniques such as Bayesian optimization, active search, and nonmyopic decision-making. A common application is the acceleration of scientific discovery in e.g. drug and materials science.

Aug 2017 – May 2019 **Research Assistant** DePauw University, Greencastle, IN  
*Computer Science Department*  
We developed robust ensemble models and an efficient hyperparameter tuning scheme. Our work was presented at MCURCSM 2017. Our solution finished in 15th place (2.5%) of Kaggle's DonorsChoose competition.

May 2018 – Sep 2018 **Data Analysis Engineer Intern** Micron Technology, Inc., Boise, ID  
*R&D Department*  
We designed a human-in-the-loop pipeline to actively detect defects and identify causes using statistical methods. Our findings helped improve interpretability in the larger workflow.

## Academic Publications

**Quan Nguyen**, Roman Garnett. Nonmyopic Multiclass Active Search for Diverse Discovery. *arXiv preprint*, 2022. [Paper](#).

Fatemah Mukadum, **Quan Nguyen**, Daniel Adrion, Gabriel Appleby, Rui Chen, Haley Dang, Remco Chang, Roman Garnett, Steven Lopez. Efficient Discovery of Visible Light-Activated Azoarene Photoswitches With Long Half-Lives Using Active Search. *Journal of Chemical Information and Modeling*, 2021. [Paper](#).

**Quan Nguyen**, Arghavan Modiri, and Roman Garnett. Nonmyopic Multifidelity Active Search. *International Conference on Machine Learning (ICML)*, 2021. [Paper](#).

**Quan Nguyen**, Sanmay Das, and Roman Garnett. Scarce Societal Resource Allocation and the Price of (Local) Justice. *AAAI Conference on Artificial Intelligence (AAAI)*, 2021. [Paper](#).

Shayan Monadjemi, **Quan Nguyen**, Henry Chai, Roman Garnett, and Alvitta Ottley. Active Visual Analytics: Assisted Data Discovery in Interactive Visualizations via Active Search. *arXiv preprint*, 2020. [Paper](#).

**Quan Nguyen**, Mason Seeger, and Steven Bogaerts. Ensembles of Gradient Boosting Regressors in Housing Price Error Prediction. *Midstates Conference For Undergraduate Research in Computer Science and Mathematics (MCURCSM)*, 2017.

## Books & Other Media

**Quan Nguyen**. Bayesian Optimization in Action. *Manning Publications*, 2023. (In preparation.)

**Quan Nguyen**. Advanced Python Programming, 2nd Edition. *Packt Publishing Ltd*, 2022. (In preparation.)

Peter Farrell, Alvaro Fuentes, Ajinkya Sudhir Kolhe, **Quan Nguyen**, Alexander Joseph Sarver, Marios Tsatsos. The Statistics and Calculus with Python Workshop: A comprehensive introduction to mathematics in Python for artificial intelligence applications. *Packt Publishing Ltd*, 2020. [Book](#).

Alessandro Palmas, Emanuele Ghelfi, Alexandra Galina Petre, Mayur Kulkarni, Anand N.S., **Quan Nguyen**, Aritra Sen, Anthony So, Saikat Basak. The Reinforcement Learning Workshop: Learn how to apply cutting-edge reinforcement learning algorithms to a wide range of control problems. *Packt Publishing Ltd*, 2020. [Book](#).

**Quan Nguyen**. Deep learning with Google Colab: Implementing and training deep learning models in a free, integrated environment. *Udemy*, 2019.

**Quan Nguyen**. Hands-on Application Development with PyCharm: Accelerate your Python applications using practical coding techniques in PyCharm. *Packt Publishing Ltd*, 2019. [Book](#).

Gabriele Lanaro, **Quan Nguyen**, Sakis Kasampalis. Advanced Python Programming: Build high performance, concurrent, and multi-threaded apps with Python using proven design patterns. *Packt Publishing Ltd*, 2019. [Book](#).

**Quan Nguyen**. Asynchronous Programming in Python for Web Scraping. “Learn data science best practices” series of *DataScience.com* (part of Oracle), 2018.

**Quan Nguyen**. Mastering Concurrency in Python: Create faster programs using concurrency, asynchronous, multithreading, and parallel programming. *Packt Publishing Ltd*, 2018. [Book](#).

## Invited Talks

Active Preference Learning and Optimization Under Uncertainty. Conference talk at *PyData Global*, 2021.

Nonmyopic Multifidelity Active Search. Poster presentation at *International Conference on Machine Learning (ICML)*, 2021.

Nonmyopic Bayesian Optimization. Ph.D. qualification exam at *Washington University in St. Louis*, 2021.

Scarce Societal Resource Allocation and the Price of (Local) Justice. Poster presentation at *AAAI Conference on Artificial Intelligence (AAAI)*, 2021.

Bayesian Machine Learning: A PyMC-Centric Introduction. Conference talk at *PyMCon*, 2020.

## Awards & Honors

2021	Honors Distinction for Outstanding Ph.D. Students, Washington University in St. Louis
2019	Robert J. Thomas Outstanding Senior Award, DePauw University
2019	David Becker Fellow, Information Technology Associates Program, DePauw University
2019	Outstanding Chapter President, DePauw University
2017 – 2019	Perennial Scholarship Recipient, Sigma Nu National Fraternity
2015 – 2019	Science Research Fellow, DePauw University
2019	Phi Beta Kappa, DePauw University
2018	Youngest Published Book Author, Packt Publishing
2018	Wylie Condit Scholarship Recipient, Computer Science Department, DePauw University
2018	Wylie Condit Scholarship Recipient, Mathematics Department, DePauw University
2016	First Place, Michigan Autumn Take-Home (MATH) Mathematics Challenge
2015	Second Place, Vietnamese National Mathematical Olympiad

## Activities

2021 – present	Student Leadership Council, Harnessing the Data Revolution (HDR) Research Grant
2020	Chair of the Program Committee, PyMCon
2020 – present	Lieberman Advisory Committee, Washington University in St. Louis
2019 – present	Graduate Student Association, Washington University in St. Louis
2017 – present	Writer for the Python Software Foundation (PSF)
2018 – 2019	President of the DePauw Data Science Group (DPUDS), DePauw University
2018 – 2019	President of the Beta Beta chapter of Sigma Nu fraternity, DePauw University