

# Alexander Raistrick

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## EDUCATION

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### Princeton University

September 2021 – present

Ph.D Student, Department of Computer Science

Advisor: Jia Deng

### University of Michigan

September 2017 – April 2021

BSE Computer Science, Minor in Mathematics

Overall GPA: 3.9/4.00. CS GPA 3.95/4.0, Math Minor 4.0/4.0

## RESEARCH INTERESTS

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Synthetic Data for Computer Vision. Object Tracking, Computer Graphics, Indoor Scene Understanding.

## AWARDS AND HONORS

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Best Paper Award at CHI 2020 - "MRAT: The Mixed Reality Analytics Toolkit"

University of Michigan: Summa Cum Laude, EECS Scholar Award, James B. Angell Scholar

## PUBLICATIONS

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- [1] **Alexander Raistrick**, Nilesh Kulkarni, and David F. Fouhey. Collision Replay: What Does Bumping Into Things Tell You About Scene Geometry? *BMVC*, 2021 (**Oral**).
- [2] Michael Nebeling, Maximilian Speicher, Xizi Wang, Shwetha Rajaram, Brian D Hall, Zijian Xie, **Alexander R. E. Raistrick**, Michelle Aebbersold, Edward G Happ, Jiayin Wang, et al. MRAT: The mixed reality analytics toolkit. *Proc. Conference on Human Factors in Computing Systems (CHI)*, 2020 (**Best Paper**).

## EXPERIENCE

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### Research Assistant — Princeton Vision and Learning Lab

September 2021 – present

– Working on synthetic data for 3D vision. Advised by Prof. Jia Deng.

### Research Assistant — Fouhey AI Lab

April 2020 – September 2021

– Researched single-view indoor floorplan reconstruction using weak supervision from robot collisions (1). Advised by Prof. David Fouhey.

### Software Engineering Intern — Microsoft

May – July 2019

- Implemented interpretable ML models for financial transaction categorization and anomaly detection.
- Awarded 2nd Place in "Hack for Industry" hackathon - Designed DNNs to predict tax audit failures.
- Organized a series of 8 intro to AI lectures for interns new to the field.

### Research Assistant — Michigan Information Interaction Lab

August 2018 – April 2019

– Designed clustering algorithms and visualization for augmented reality interaction research (2). Advised by Prof. Michael Nebeling.

## Data Science Intern — NquiringMinds

July – August 2018

- Researched methods for anomaly detection on large maritime trajectory datasets, to identify smuggling and human trafficking.

## Summer Research Assistant — U-M MAVRIC Lab,

May – July 2018

- Engineered an autonomous vehicle interaction simulator for use in HCI research.

## OTHER PROJECTS

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### “Maximal Munch” Internet Search Engine from Scratch, U-M EECS 398

January – April 2019

- Architected a distributed web crawler from scratch in C++ which indexed over 140 million web pages.
- Designed Natural Language Processing algorithms for web page ranking and crawling prioritization.

### Multimedia Search from Composite Inputs, U-M EECS 442

Summer 2018

- Implemented a learned image-text search engine, explored reasoning on web content with embedded images.

## TEACHING

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Princeton COS 324 — Introduction to Machine Learning

Spring 2023

Princeton COS 529 — Advanced Computer Vision

Fall 2022

U-M AI4ALL — Summer Outreach Program

Summer 2021

U-M EECS 280 — Programming and Intro Data Structures

Winter 2020, Fall 2020

U-M EECS 398 — System Design of a Search Engine

Fall 2019

## SKILLS

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Machine Learning Python, Pytorch, Numpy, OpenCV and common data science libraries.

Systems C++, including multi-threaded OS-level system design and networking

Graphics Expert in Blender (esp. scripting), Unity3D, some UnrealEngine, WebGL.