

# ALEXANDER KRENTSEL

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## EDUCATION

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### University of California, Berkeley - Graduate

2022-2027

· Funded by a National Science Foundation Fellowship

PhD in Computer Science

· Advisors: Scott Shenker, Sylvia Ratnasamy

### University of California, Berkeley - Undergraduate

2015-2019

· Out-of-State Regents' and Chancellor's Scholar - awarded to 20 students in incoming class

B.S in Electrical Engineering and Computer Science (EECS)

GPA: 3.91

· Honors Degree

· Magna Cum Laude

B.A in Music (Violin), *Phi Beta Kappa*

· Magna Cum Laude

## PUBLICATIONS

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\* denotes equal contribution. Author list uses given-name initials; bolded entry is author of this CV.

1. "Not Too Soon for Just-in-Time Systems: Challenges and Opportunities." S. Liu\*, **A. Krentsel\***, S. Agarwal\*, M. Cemri\*, Z. Mao, S. Ponnappalli, A. G. Dimakis, S. Ratnasamy, A. Parameswaran, I. Stoica. *Under Submission*.
2. "SkyDiscover: A Flexible Framework for AI-Driven Scientific and Algorithmic Discovery." S. Liu\*, M. Cemri\*, S. Agarwal\*, **A. Krentsel**, et al. *Ongoing research*.
3. "DeTE: Decomposed Traffic Engineering for the WAN." R. Bothra, **A. Krentsel**, S. Mandal, B. Godfrey, S. Ratnasamy, R. Shakir, R. Srikant. *Under Submission*.
4. "TURBO: Utility-Aware Bandwidth Allocation for Cloud-Augmented Autonomous Control." P. Schafhalter\*, **A. Krentsel\***, H. Wei, J. E. Gonzalez, S. Ratnasamy, S. Shenker, I. Stoica. *NINeS 2026*.
5. "CrossCheck: Input Validation for WAN Control Systems." **A. Krentsel**, B. Modhipalli, R. Iyer, I. Keslassy, S. Ratnasamy, A. Shaikh, R. Shakir. *NSDI 2026*.
6. "Towards Accessible Model-Free Verification." **A. Krentsel**, O. Ye, A. Tafoya, X. Ma, S. Ratnasamy, A. Shaikh. *HotNets 2025*.
7. "Barbarians at the Gate: How AI is Upending Systems Research." A. Cheng, S. Liu, M. Pan, Z. Li, B. Wang, **A. Krentsel**, T. Xia, M. Cemri, J. Park, S. Yang, J. Chen, L. Agrawal, A. Desai, J. Xing, K. Sen, M. Zaharia, I. Stoica. *arXiv 2025*.
8. "Managing Bandwidth: The Key to Cloud-Assisted Autonomous Driving." **A. Krentsel\***, P. Schafhalter\*, J. E. Gonzalez, S. Ratnasamy, S. Shenker, I. Stoica. *arXiv 2024*.
9. "The Case for Validating Inputs in Software-Defined WANs." **A. Krentsel**, R. Iyer, I. Keslassy, S. Ratnasamy, R. Shakir, A. Shaikh. *HotNets 2024*.
10. "A Decentralized SDN Architecture for the WAN." **A. Krentsel**, N. Saran, B. Koley, S. Mandal, A. Narayanan, S. Ratnasamy, A. Al-Shabibi, A. Shaikh, R. Shakir, A. Singla, H. Weatherspoon. *SIGCOMM 2024*.
11. "The Sky is the Limit: Cloud-Assisted Autonomous Driving via Service Tiers." **A. Krentsel**, P. Schafhalter, J. E. Gonzalez, S. Ratnasamy, S. Shenker, I. Stoica. *Compound AI Systems Workshop, Databricks Data + AI Summit 2024*.

## EXPERIENCE

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### Google - Systems Research Group

2021 - Present

Senior Systems Research Engineer

Sunnyvale, CA

- Performing research focused on increasing the reliability of Google's WAN networks.
- Working with Sylvia Ratnasamy and other researchers to re-architect Google's network from a relatively clean slate, published at SIGCOMM '24.

- Managed two graduate student interns, preparing and designing their projects and reviewing their day-to-day work.

### **Google/YouTube**

*Software Engineer*

2019 - 2021

*San Bruno, CA*

- Worked on YouTube Music & Premium Growth team, focused on acquisition/retention of Music & Premium members.
- Designed and implemented new “Versatile Flow” infrastructure which supports progress bars, forward and back navigation, error recovery, and easy experimentation out of the box, used by 4 YouTube teams and served 10+ million times a month.
- Built system to calculate and serve Premium Benefit Usage statistics on-demand, displayed in the Premium cancellation flow and member hub. Served more than 13 million times a month.
- Shipped re-designed Premium and Music Premium cancellation flows on new flow infra, decreasing cancellations by 6%.

### **Berkeley AI Research Lab (BAIR)**

*Undergraduate Researcher*

October 2018 - April 2019

*Berkeley, CA*

- Assisted postdoc in research in Prof. Alyosha Efros’ lab, focused on extracting features from video clips and automatically selecting the best music to match a given short video clip.
- Performed statistical data analysis on ratings sourced from Mechanical Turk, developed new video-audio matching hypotheses, and designed new crowdsourcing experiment questions and schema to test hypotheses.

### **Google, Facebook, YouTube**

*Software Engineering Internships*

Summer 2016, 2017, 2018

*Mountain View, Zurich, Menlo Park*

- Industry internships doing full stack development work.

## **TEACHING**

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### **AddisCoder**

*Lecturer*

Summer 2026 (upcoming)

*Addis Ababa, Ethiopia*

- Returning as a lecturer for AddisCoder’s accelerated intro to CS program.

### **JamCoders**

*Lecturer*

Summer 2025

*Kingston, Jamaica*

- Lectured in JamCoders, an accelerated intro to CS program for Jamaican high school students.
- Taught 50 students with a TA staff of 11.

### **AddisCoder**

*Lecturer*

Summer 2023

*Addis Ababa, Ethiopia*

- Taught 100 students aged 15-17 fundamentals of CS.
- Managed TA staff of 19, wrote and gave 15 hours of lectures, oversaw lab material development.

### **UC Berkeley**

*Head Graduate Student Instructor - CS168 Internet Architecture*

Fall 2022

*Berkeley, CA*

- Managed team of 9 TAs, including distributing work, running weekly staff meetings, and preparing section content.
- Taught 2 discussion sections, prepared discussion and supplementary materials, held 2 weekly office hours, recorded section videos, and wrote/graded exams.

### **Howard University**

*Lecturer - CSCI100 Intro to Computer Science*

Fall 2021

*Washington, DC*

- Lecturer for class of 185 students, made up of mostly first year CS majors and some non-major upperclassmen.
- Created TA hiring process, managed course staff of 1 grad student, 4 undergraduate TAs, and 15 Google volunteer TAs.
- Designed and wrote curriculum, producing 140 lecture videos published publicly on official CSCI100 YouTube channel.
- Built course website ([www.csci100.org](http://www.csci100.org)) and office hours infrastructure, managed Piazza, Mimir, and Blackboard.
- Mentored students, wrote recommendation letters, reviewed resumes, helped students apply to industry/research positions.
- Organized industry guest speakers on technical topics, career path overviews, and interview preparation.

### **Stanford**

*Section Leader - CS106A Code-in-Place*

April 2020 - May 2020, April 2021 - May 2021

*Virtual*

- Member of teaching team for Code in Place at Stanford, with 10,000 global students and 900 volunteer teachers.
- Prepared and taught a weekly discussion section of 10-12 students to supplement professors’ lectures in a 5-week introductory online Python programming course based on Stanford’s introductory programming course, CS106A.

- 5 semesters as TA for CS189 Intro to Machine Learning, CS168 Internet Architecture, CS61B Data Structures & Algorithms, EE16A Intro to Electrical Engineering (2x).
- Taught discussion sections, prepared discussion and supplementary materials, held 2 weekly office hours, and wrote discussions/exams.
- Co-wrote and designed new project for CS61B, centered around students designing own game world-generation algorithm.

## MENTORING

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<b>Neha Manjunath</b> , M.S., 2023–2024 · Digital Twin network modeling	<i>Now SWE at Google</i>
<b>Evgenii Sizykh</b> , B.S., 2024 · Network intent extraction	<i>Now SWE at Databricks</i>
<b>Oliver Ye</b> , B.S., 2024–2025 · Formal verification for networks; internet architecture for agents	<i>Now SWE at OpenAI (Personalization)</i>
<b>Anthony Tafoya</b> , B.S., 2025 · Model-free verification	<i>Now SWE at OpenAI</i>
<b>Hongbo Wei</b> , B.S., 2025 · Autonomous vehicle control systems	<i>Now at Amazon</i>

## SKILLS

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**Programming Languages/Frameworks:**  
C++, Python, Go, Java, JS, Android, React, Angular

**Foreign Languages:**  
Fluent in Russian and Ukrainian, Intermediate in Spanish

## EXTRACURRICULAR ACTIVITIES

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### **Berkeley Engineers and Mentors (BEAM) Officer, Site Leading and External Affairs**

- Taught weekly after school science lessons at local elementary schools. Led school-specific team of 5 mentors.

### **TEDxBerkeley Organizer**

- Co-organized TEDxBerkeley 2019 with a team of 11 others, bringing 18 diverse speakers.
- Successfully sold out tickets to the event, managing a budget of over \$100,000.
- Co-Director of Technology, and member of Marketing and Partnerships teams.

### **Regents Overnight Host Program Committee**

- Organized the first Regents Overnight Host program for 50 out-of-state Regents' Scholarship candidates.

### **UC Berkeley Symphony Orchestra**

- Assistant Principal 2nd Violinist, Assistant Principal Viola, 1st Violinist

### **UC Berkeley Chamber Music**

- 1st Violinist in string quartet. Performed in masterclass for Takacs Quartet and in 3 Berkeley Community Concerts.

### **Eta Kappa Nu (HKN) Officer, Industrial Relations and Tutoring**

- Organized weekly drop-in tutoring for covering all EECS classes, staffed by other HKN officers for 30 hours a week.
- Built/maintained relationships with industry recruiters, co-hosted recruiting events and solicited donations.

### **Googler Orchestra**

- Co-organizer and principal 2nd violin of the Googler Virtual Orchestra, bringing together more than 325 musicians to produce virtual concerts asynchronously.

### **Howard University Orchestra**

- Concertmaster

## AWARDS AND HONORS

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**National Science Foundation Graduate Fellowship:** Selected for inaugural year of NSF CSGrad4US Graduate Fellowship program, which provides \$138,000 in support over 3 years towards a PhD to return from industry to academia.

**Out-of-State UC Regents' and Chancellor's Scholarship:** Awarded to 20 students out of 8,800 person class, this scholarship provides \$100,000 plus full financial need, totaling \$210,000 over 4 years.

**Accel Scholar:** Selected as one of top 25 Computer Science students as part of the 2017-2018 inaugural class.

**EECS Honors Program:** Graduated from Honors Program with an Honors Degree, breadth area of Music.

**Kraft Award for Freshmen:** Stipend awarded to freshmen achieving a 4.00 GPA in their first fall semester at Berkeley.

**Cal Leadership Award:** \$2,000 scholarship awarded by the Cal Alumni Association to recognize innovative, initiative-driven leadership impacting their academic, work, or community environments.

**Phi Beta Kappa (PBK):** Liberal Arts Honor Society, membership extended to top 10% of liberal arts students

**Eta Kappa Nu (HKN):** Elec. Eng. & Computer Science Honor Society, inducted as part of top 25% of EECS juniors.

**Tau Beta Pi (TBP)**: Engineering Honor Society, inducted as part of the top 12% of junior standing Engineering students.