

## Education

- Massachusetts Institute of Technology** (Cambridge, MA) Sept 2021 -  
PhD in Electrical Engineering and Computer Science — *advised by Jonathan Ragan-Kelley*
- Stanford University** (Palo Alto, CA), GPA 4.13 / 4.0, graduated with distinction Sept 2017 - June 2021  
BS in Computer Science with Honors — *advised by Gregory Valiant*  
BA in English Literature  
Minor in Physics
- Henry M. Gunn High School** (Palo Alto, CA), GPA 4.49 / 4.0 Nov 2013 - June 2017

## Experience

- Berkeley Oz Vision**, Research assistant with Ren Ng (Berkeley, CA) June 2021 - Aug 2021  
Designed, trained, and deployed ML system to predict fixational eye movements in real time  
Presented research at BAVRD 2021, winning lightning talk competition  
*PyTorch, vision science, explainable AI*
- NVIDIA Research**, Research Intern (Santa Clara, CA) June 2020 - Sept 2020  
Adapted DLSS 2.0 deep learning system to denoise realtime pathtracing output  
*PyTorch, deep learning, synthetic data pipelines, real-time graphics*
- Facebook**, Software Engineering Intern with Erik Meijer (Menlo Park, CA) June 2019 - Sept 2019  
Researched novel methods for gradient-based hyperparameter optimization [[ArXiv](#)]  
*PyTorch, Scala, differentiable programming, modern machine learning systems*
- Stanford NLP**, Research assistant with Alex Aiken and Percy Liang (Palo Alto, CA) Sept 2018 - June 2019  
Developed techniques for NLP-guided program synthesis [[NeurIPS '19](#)]  
*NLP, neural networks, C++, Python, PyTorch, Amazon Mechanical Turk*
- Clause.io**, Intern (New York, NY) June 2018 - Aug 2018  
Designed type system for [Ergo](#), a DSL for executable legal contracts [[NEPLS '18](#)]  
*Coq, OCaml, JavaScript, compiler design, formal verification, contract law*
- UW Seattle PLSE Lab**, Research assistant with Ras Bodik (Seattle, WA) Jan 2015 - Aug 2017  
Designed tools to study type systems by solver-aided synthesis [[POPL '18](#)]  
*Scheme, OCaml, SMT solvers, compiler design, symbolic execution, type theory*

## Open-source contributions

- Nearley parser generator**, original author and lead developer ([nearley.js.org](#)) Jan 2014 - present  
JavaScript parsing toolkit, 10M+ downloads/month, 100K+ dependents on Github  
Used by AirBnb, Amazon, Adobe, LinkedIn, NBC, and research labs at UW, ANU, Chalmers  
*JavaScript, parsing algorithms, performance optimization, open-source project management*
- Berkeley Snap!**, contributor ([snap.berkeley.edu](#)) Oct 2014 - July 2016  
Visual programming language, used by 1,500+ high schools and CS 10 at Berkeley  
Led panel session on CS education at Scratch@MIT Media Lab 2016  
*JavaScript, programming language design, CS education, graphics, interactive media*

## Publications

**Kartik Chandra**, Chuma Kabaghe, and Gregory Valiant. Beyond laurel/yanny: An autoencoder-enabled search for polyperceivable audio. In *ACL*, 2021. URL [https://theory.stanford.edu/~valiant/papers/laurel\\_yanny\\_ACL.pdf](https://theory.stanford.edu/~valiant/papers/laurel_yanny_ACL.pdf).

Sumith Kulal, Panupong Pasupat, **Kartik Chandra**, Mina Lee, Oded Padon, Alex Aiken, and Percy S Liang. Spoc: Search-based pseudocode to code. In *NeurIPS*, 2019. URL <https://papers.nips.cc/paper/9360-spoc-search-based-pseudocode-to-code.pdf>.

**Kartik Chandra** and Rastislav Bodík. Bonsai: Synthesis-based reasoning for type systems. In *POPL*, 2018. URL <https://arxiv.org/abs/1708.00551>.

Rastislav Bodík, **Kartik Chandra**, Phitchaya Mangpo Phothilimthana, and Nathaniel Yazdani. Domain-Specific Symbolic Compilation. In *SNAPL*, 2017. URL <https://drops.dagstuhl.de/opus/volltexte/2017/7133>.

## Unpublished work / under submission

**Kartik Chandra** and Erik Meijer. Gradient descent: The ultimate optimizer, 2019. URL <https://arxiv.org/abs/1909.13371>.

## Talks

<i>Predicting Microsaccades with Machine Learning</i> , Bay Area Vision Research Day (BAVRD)	2021
<i>Beyond Laurel/Yanny</i> , Association for Computational Linguistics (ACL)	2021
<i>Finding Your Superpower</i> , SAP Young Thinkers Learning Festival, Berkeley/virtual	2021
<i>Differentiable Snap!</i> , Snap!Shot ignite talk, Berkeley/virtual	2020
<i>RAThE(R-OK): Deep Learning for Denoising!</i> , NVIDIA Research/virtual	2020
<i>Learning to learn by gradient descent by gradient descent</i> , Stanford Software Research Lunch	2019
Gunn High School Engineering Night	2019
<i>Designing a Strongly Typed DSL for Executable Legal Contracts</i> , New Eng PL/Sys Symposium, Harvard	2018
<i>BONSAI: Synthesis-Based Reasoning for Type Systems</i> , Principles of Programming Languages (POPL)	2018
<i>Synthesis-based Reasoning for Type Systems</i> , Stanford Software Research Lunch	2018
Baccalaureate Address, Gunn High School	2017
<i>Why Curiosity Still Matters</i> , TEDxGunnHighSchool	2017
<i>Automatically Finding Scala Soundness Bugs</i> , Scala Symposium, co-located with SPLASH	2016
<i>Verification of Type Systems via Symbolic Execution</i> , University of Washington, Seattle	2016
<i>The Seasoned Scratcher</i> (led panel session), Scratch CS Education Conference, MIT	2016
Gunn High School Engineering Night	2015

## Awards

MIT EECS Great Educators Fellowship	2021
Paul & Daisy Soros Fellowship for New Americans	2021
Hertz Foundation Fellowship	2021
National Defense Science and Engineering Graduate Fellowship (NDSEG) — <i>declined</i>	2021
NSF Graduate Research Fellowship	2021
Stanford Terman Award for Scholastic Achievement (awarded to 30 seniors in engineering)	2021
Stanford Sterling Award for Scholastic Achievement (awarded to 25 seniors in H&S)	2021
Phi Beta Kappa (awarded as a junior, top 2% of class)	2020
Goldwater Scholarship	2020
Gunn High School academic awards in math, CS, chemistry, biology, English, French	2017
National Merit Scholar	2017
Intel Excellence in Computer Science Award, Synopsys Science Fair	2016
Ross Mathematics Program Book Award	2015

## Teaching

CS 106 (intro CS), Stanford, senior section leader via CS 198 program  
Chemistry (honors), Gunn HS, TA

spr '18, aut '19, win '20, spr '21  
aut '15, spr '16

## Activities & Service

<b>Stanford Space Initiative (SSI)</b> co-lead, ran K12 programs at Maker Faire, Exploratorium	2018 - 2021
<b>Stanford Splash</b> co-chair for biannual <a href="#">educational program</a> for 1,000+ HS students	2018 - 2020
<b>Juggler</b> with <a href="#">Down with Gravity</a> , perform and teach lessons for local children	2017 - 2020
<b>GunnHacks</b> president and founder, 24 hour educational hackathon	2014 - 2017
<b>Amateur radio</b> FCC Technician license	2018 - present
<b>Pianist</b> in jazz ensembles, rehearsal/performance coordinator, composer and arranger	2014 - present
<b>Blogger</b> at <a href="#">Comfortably Numbered</a> , 80+ essays (100K+ words), HN topper	2013 - present

## Languages

English (native), Hindi (native), French (intermediate), Russian (intermediate)