



EDUCATION

Diploma May 2023	Harvard University , Cambridge, MA Ph.D. in Computer Science. Advisor: Finale Doshi-Velez Dissertation: <i>But What Did You Actually Learn?</i> <i>Improving Inference for Non-Identifiable Deep Latent Variable Models</i>
Diploma May 2016	New England Conservatory of Music , Boston, MA ‡M.M in Contemporary Improvisation. GPA: 3.96
Diploma May 2015	Harvard University , Cambridge, MA ‡A.B. in Computer Science. <i>Cum Laude in Field</i> . GPA: 3.748 ‡Joint degree program



PROFESSIONAL EXPERIENCE

July 2024– Present	Wellesley College , Department of Computer Science <i>Assistant Professor</i>
May 2023– June 2024	Harvard University & Massachusetts General Hospital <i>Postdoctoral Fellow, Advisor: Matthew K. Nock</i> <ul style="list-style-type: none"> › Developed novel machine learning methodology to advance the understanding, prediction, and prevention of suicide and related behaviors.
Summer 2024	FASPE: Fellowships at Auschwitz for the Study of Professional Ethics <i>Design & Technology Fellow, Faculty Advisors: Mary L. Gray, Lindsey Cameron</i> <ul style="list-style-type: none"> › Examined complicity in Nazi-era professionals to confront current ethical issues faced by technologists.
May 2021– Aug 2021	Microsoft Research New England , Biomedical-ML Team <i>Research Intern, Advisor: Lorin Crawford</i> <ul style="list-style-type: none"> › Identified mechanism for why existing predictive models generalize poorly to underrepresented populations in Biobanks, and why traditional fixes do not mitigate the issue.



PUBLICATIONS

I served as a direct research mentor to student co-authors whose names are underlined.

- [1] P Arens, A Quirk, W Pan, **Y Yacoby**, F Doshi-Velez, C Walsh. *Preference-based assistance optimization for lifting and lowering with a soft back exosuit*. Accepted @ Science Advances 2025.
- [2] S Wang, R Van Genugten, **Y Yacoby**, W Pan, K Bentley, S Bird, R Buonopane, A Christie, M Daniel, D DeMarco, A Haim, L Follet, R Fortgang, F Kelly, E Kleiman, A Millner, O Obi-Obasi, J Onnela, N Ramlal, J Ricard, J Smoller, T Tamedou, K Zuromski, M Nock. *Building personalized machine learning models using real-time monitoring data to predict idiographic suicidal thoughts*. Accepted @ Nature Mental Health, 2024.
- [3] **Y Yacoby**, W Pan, F Doshi-Velez. *Towards Model-Agnostic Posterior Approximation for Fast and Accurate Variational Autoencoders*. Accepted @ the Workshop at the Symposium on Advances in Approximate Bayesian Inference (AABI), 2024.
- [4] H Tadesse, **Y Yacoby**, W Pan, F Doshi-Velez. *Optimizing Machine Learning Explanations for Properties*. Accepted @ the Humans, Algorithmic Decision-Making and Society Workshop at ICML 2024.
- [5] **Y Yacoby**, J Girash, D Parkes. *Empowering First-Year Computer Science Ph.D. Students to Create a Culture that Values Community and Mental Health*. Accepted @ SIGCSE 2023. Oral Presentation
- [6] J Yao, **Y Yacoby**, B Coker, W Pan, F Doshi-Velez. *An Empirical Analysis of the Advantages of Finite- vs. Infinite-Width Bayesian Neural Networks*. Accepted @ NeurIPS ICBINB 2022.

- [7] ***Y Yacoby**, *W Pan, F Doshi-Velez. *Mitigating the Effects of Non-Identifiability on Inference for Bayesian Neural Networks with Latent Variables*. Accepted @ JMLR 2022. [🔗](#)
 > Previous version accepted @ the ICML Workshop on Uncertainty & Robustness in Deep Learning (UDL), 2019. [🔗](#) TALK Spotlight Talk
- [8] **Y Yacoby**, B Green, C Griffin, F Doshi-Velez. *“If it didn’t happen, why would I change my decision?”: How Judges Respond to Counterfactual Explanations for the Public Safety Assessment*. Accepted @ HCOMP 2022. [🔗](#)
 > Previous version accepted @ the CHI Workshop on Human Centered Explainable AI (HCXAI), 2022. [🔗](#) TALK Oral Presentation
- [9] **Y Yacoby**, W Pan, F Doshi-Velez. *Failures of Variational Autoencoders and Their Effects on Downstream Tasks*. arXiv. [🔗](#)
 > Previous version accepted @ the ICML Workshop on Uncertainty & Robustness in Deep Learning (UDL), 2020. [🔗](#)
- [10] ***S Thakur**, ***C Lorsung**, ***Y Yacoby**, F Doshi-Velez, W Pan. *Uncertainty-Aware (UNA) Bases for Deep Bayesian Regression Using Multi-Headed Auxiliary Networks*. arXiv. [🔗](#)
 > Previous version accepted @ the ICML Workshop on Uncertainty & Robustness in Deep Learning (UDL), 2020. [🔗](#)
- [11] **T Guenais**, **D Vamvourellis**, **Y Yacoby**, F Doshi-Velez, W Pan. *BaCOUn: Bayesian Classifiers with Out-of-Distribution Uncertainty*. ICML Workshop on Uncertainty & Robustness in Deep Learning (UDL), 2020. [🔗](#)
- [12] **M Downs**, **J Chu**, **Y Yacoby**, F Doshi-Velez, W Pan. *CRUDS: Counterfactual Recourse Using Disentangled Subspaces*. ICML Workshop on Human Interpretability in Machine Learning (WHI), 2020. [🔗](#)
- [13] **Y Yacoby**, W Pan, F Doshi-Velez. *Characterizing and Avoiding Problematic Global Optima of Variational Autoencoders*. Advances in Approximate Bayesian Inference (AABI), 2019. Additionally selected for publication @ Proceedings of Machine Learning Research (PMLR) 118:1-17, 2020. [🔗](#) TALK Spotlight Talk (Top 33%)
- [14] D Vaughan, W Pan, **Y Yacoby**, EA Seidler, AQ Leung, F Doshi-Velez, D Sakkas. *The application of machine learning methods to evaluate predictors of live birth in programmed thaw cycles* (clinical abstract). American Society of Reproductive Medicine (ASRM), 2019.



TEACHING

Fall 2024	CS349: Probabilistic Foundations of Machine Learning , Wellesley College <i>Creator/Instructor</i> > Developed new course on probabilistic machine learning (ML) model design. Course assumes no background in ML, probability, linear algebra, and multivariate calculus. By the end, students can propose, fit, and evaluate complex (Bayesian) directed graphical models with latent variables. > Course centers critical ethical lenses for interrogating every piece of ML machinery as it is introduced, culminating in discussions on the role of the Eugenics movement in shaping modern-day ML and our professional responsibility as technologists. > Course grounded in semester-long theme—the “Intergalactic Hypothetical Hospital”—providing a whimsical (but realistic) healthcare context for model evaluation and ethics discussions. > Developed online textbook specifically for this course 🔗 .
Fall 2024– Present	CS230: Data Structures in Java , Wellesley College <i>Instructor</i> > Taught core-curricular class in the CS major. Topics include: Object-Oriented Programming, Data Structures, and Time/Space-Complexity.
Fall 2021– Spring 2023	CS290A&B: Effective Research Practices & Academic Culture , Harvard University <i>Creator/Developer and Co-instructor</i>

- › Created new syllabus and content to focus on the needs of entering Ph.D. students. Topics include: skill building (e.g. how to read research papers, communication in collaborative environments), soft skill building (e.g. managing advising relationships, how to support your peers), and academic culture (e.g. mental health in academia, normalizing and de-stigmatizing of mental health needs, discussion of power dynamics in scientific communities, healthy expectation setting, etc.).
- › Two-semester class is mandatory for all entering CS Ph.D. students (2021-2022: 27 students, 2022-2023: 45 students).
- › *Impact:* Materials adapted for CSE 590X at the University of Washington, and the Cornell Bowers CIS Undergraduate Research Program (BURE). Consults for the development of a similar course in the Harvard Applied Physics Ph.D. program, and for an orientation workshop series in the Institute of Applied Computational Sciences Master's program.
- › *Online:* course website [↗](#), teaching materials [↗](#), paper about course [↗](#).

Fall 2018 **CS281: Advanced Machine Learning**, Harvard University
Teaching Fellow

- › Taught sections, hosted office hours, contributed to course materials, wrote homework solutions, edited and graded exams, co-taught unit on Markov Chain Monte Carlo methods.

Fall 2015 **CS61: Systems Programming & Machine Organization**, Harvard University
Teaching Fellow

- › Taught weekly section, hosted office hours, facilitated discussions in flipped classroom, validated course materials, graded exams, and designed course surveys.

Fall 2012 **CS50: Intro to Computer Science I**, Harvard University
Teaching Fellow

- › Taught weekly advanced section, hosted office hours, graded problem-sets and exams.

GUEST LECTURES:

Dec 2023 **CS290: Seminar on Effective Research Practices & Academic Culture**, Harvard University
Topic: A systemic perspective on academic culture—feedback cycles in academic culture.

Sep 2022 **AC299r: Diversity, Inclusion and Leadership in Tech**, Harvard University
Topic: Student leadership—opportunities and institutional barriers. A case study about community building in Harvard CS.

May 2022 **CS136: Statistical Pattern Recognition**, Tufts University
Topic: Variational Autoencoders

Oct 2021 **AC299r: Diversity, Inclusion and Leadership in Tech**, Harvard University
Topic: Discussion on academic culture and community building in graduate school

Nov 2018 **CS281: Advanced Machine Learning**, Harvard University
Topic: Markov Chain Monte Carlo methods

AWARDS:

Spring 2023 **Area Chair Student Award for Computer Science Teaching & Advising**, Harvard University
 Fall 2022 **Certificate of Recognition in Teaching**, GSAS, Harvard University
 Spring 2022 **Certificate of Distinction in Teaching**, Derek Bok Center for Teaching, Harvard University
 Fall 2021 **Certificate of Distinction in Teaching**, Derek Bok Center for Teaching, Harvard University



MENTORING

Research Mentees @ Wellesley College:

Undergrad: › Annie Chen, Genesis Hang, Jane Liu, Malinda Lu, Emmie Regan

Research Mentees @ Harvard University:

Undergrad: › Luke Bailey, Jonathan Chu, Max Guo, David Ma, Zev Nicolai-Scanio, Claire Tseng, Annie Zhu

- Master's: > Lea Amar, Blake Bullwinkel, Teresa Datta, Michael Downs, Théo Guénais, Molly Liu, Cooper Lorsung, Maria Emilia Mazzolenis, Hope Neveux, Kimberly Llajaruna Peralta, Michael Sam, Sree Harsha Tanneru, Paul Tembo, Sujay Thakur, Dimitris Vamvourellis, Chenwei Wu, Ruby Zhang
- Ph.D: > Philipp Arens, Hiwot Belay Tadesse, Anna Trella

Fall 2022– **AC297r: Computational Science & Engineering Capstone**, Harvard University
 Fall 2023 *Research Mentor*

- > Mentored 9 Master's students in using probabilistic machine learning methods to model fluctuations in risk of suicidal and non-suicidal self-injury (Fall 2022).
- > Mentored 9 Master's students developing methods to predict urge to die by suicide from wearable biosensor data (Fall 2023).

Sep 2019– **AM207: Inference & Optimization**, Harvard University
 May 2022 *Research Mentor*

- > Mentored undergraduate, Master's, and Ph.D. students enrolled in the course or continuing their projects after in research on probabilistic machine learning.



COMMUNITY BUILDING & OUTREACH

Winter 2025 **Served on Panel, "Social Impacts of AI"**, Albright Institute, Wellesley College

Jan 2021– **InTouch: A peer-to-peer support group graduate students**, Harvard University
 May 2023 *Co-Leader (Feb 2022 - Jan 2023), Peer Mentor*

- > Served as a peer mentor: supported students with various challenges (e.g. managing work/life balance, unhealthy advising relationships, unhealthy self-expectations, etc.).
- > Organized outreach initiative to encourage students to seek support and recruit new members.
- > Co-led InTouch's ongoing conversation with Harvard's SEAS about developing a guaranteed transitional funding program for Ph.D. students.
- > Coordinated and hosted bi-weekly socials for community building.

October 2023 **Workshop: "Everything I wish I knew as I navigated my Ph.D."**, Carnegie Mellon University
 April 2023 **Workshop: "Everything I wish I knew as I navigated my Ph.D."**, New York University
Invited Workshop Speaker, Co-Organizer

- > Developed workshop and small-group exercises to deconstruct how societal misconceptions lead to poor mental health and exclusionary academic culture in doctoral programs. Created follow-up discussion to help jump-start a student advocacy group at NYU's Center for Data Science / CMU's Computer Science Department.

Jan 2023 **CS181 Teaching Fellow Retreat: Session on Inclusive Teaching**, Harvard University
Invited Workshop Speaker

- > Developed workshop and small-group exercises about the way societal misconceptions shape students' expectations and impact the learning environment in technical computer science classes.

Oct 2022 **IACS Workshop: "The Art and Science of Struggle"**, Harvard University
Invited Workshop Speaker


- > Developed workshop and small-group exercises about productive vs. unproductive struggle, how our misconceptions of science lead to unproductive struggle and systemically hinder us from building a supportive and inclusive community, and how to support our peers.

Oct 2022– **Student Well-being Council**, Office of the Provost, Harvard University
 May 2023 *Nominated to Represent Harvard's School of Applied Sciences and Engineering*

- > Responsible for promoting a culture of well-being for all students, fostering the exchange of best practices across schools, raising awareness of and organizing initiatives that promote mental health and well-being.

Fall 2021– **Ph.D. Working Group**, Harvard University
 Fall 2023 *Mentor*

- > Tutored students on writing personal statements and CVs, and practicing grad school interviews.
- > Debunked common myths about Ph.D. programs that often provoke imposter syndrome / cause students to self-filter during the application process.

- Oct 2020 **How to make the most out of your Ph.D.**, Harvard University
Workshop Creator and Organizer
- › Topic: managing the multi-faceted (and often undiscussed) challenges of the Ph.D., such as managing expectations, communicating with your advisor, learning to support your peers, normalizing and removing stigma from common but difficult Ph.D. student experiences.
 - › Workshop consisted of a presentation and small-group discussions led by senior Ph.D. students.
 - › Content found [here](#) .
- Feb 2019–
Feb 2020 **Women in Data Science Datathon Workshop**, Cambridge MA
Mentor
- › Mentored teams, facilitated discussion, assisted in troubleshooting problems.



PROFESSIONAL ACTIVITIES

INVITED TALKS:

- Nov 2024 **Sheldon Lab**, UMass Amherst
Model-Agnostic Posterior Approximation: How to remove inductive biases from VAE inference
- Dec 2023 **Center for Precision Psychiatry**, Massachusetts General Hospital
Machine learning for safety-critical contexts: knowing when and why your models are uncertain
- April 2023 **Center for Data Science, Graduate Student Seminar**, New York University
Mitigating the Effects of Non-Identifiability on Inference for Bayesian Neural Networks with Latent Variables
- Feb 2023 **Nock Lab, Department of Psychology**, Harvard University
Quantifying uncertainty: how can we measure how much we don't know?
- Dec 2022 **Department of Computer Science**, Wellesley College
Quantifying uncertainty: how can we measure how much we don't know?
- Dec 2022 **Department of Computer Science**, Mount Holyoke College
Quantifying uncertainty: how can we measure how much we don't know?
- Nov 2022 **Cunningham Lab, Zuckerman Institute**, Columbia University
Mitigating the Effects of Non-Identifiability on Inference for Bayesian Neural Networks with Latent Variables
- Feb 2022 **Autonomous Robotics and Perception Laboratory**, Woods Hole Oceanographic Institution
Mitigating the Effects of Non-Identifiability on Inference for Bayesian Neural Networks with Latent Variables
- March 2021 **Computational and Biological Learning Lab**, Cambridge University
Failure Modes of Variational Autoencoders and Their Effects on Downstream Tasks

CONFERENCE AND WORKSHOP REVIEWING:

- 2024 **7th Symposium on Advances of Approximate Bayesian Inference (AABI)**, Area Chair
- 2023 **Workshop on Deep Generative Models for Health @ NeurIPS**, Area Chair
- 2021 **AISTATS**, Reviewer



EARLY RESEARCH EXPERIENCE

- Sep 2017–
Dec 2017 **Accelerating Scientific Computation**, Harvard University
Graduate Research Assistant, Advisor: Margo Seltzer
- › Researched methods for approximate lazy dynamic programming for accelerating scientific computation.
 - › Discovered latent structure in computation graphs of Gaussian Process regression useful for dynamic programming.
- Jan 2015–
May 2015 **Live Audio Processing**, Harvard University
Undergraduate Research Assistant, Advisor: Hans Tutschku

- › Designed a collection of real-time audio processing tools for marimba to enable it to participate in electronic, electroacoustic and folk music scenes.
- › Tools include spectral processing, distortion effects, granular synthesis/improvisation tools, etc., written in Max/MSP (with externals in Java/JavaScript).

Sep 2013– **Computer Systems**, Harvard University

Dec 2015 *Undergraduate Research Assistant, Advisor: Margo Seltzer*

- › Automatically Scalable Computation (ASC):
 - Developed algorithms and data structures for efficient lookups in a cache of gigabyte-size vectors with wildcards for ASC, an architecture that uses additional cores to automatically parallelize single-threaded programs.
 - Benchmarked methods on different distributions of cache access patterns.
- › Efficient Random-Memory Access for Graph Databases
 - Studied properties of the Linux `madvise` system-call as a prefetching mechanism for SSD and NVM-based systems.
 - Evaluated its potential to be useful for random-access patterns in graph databases.

</> EARLY INDUSTRY EXPERIENCE

May 2016– **Uber**, San Francisco, CA

Aug 2016 *App Health Software Engineering Intern*

- › Built a suite of tools for accelerated prototyping of crash report classification.
- › Developed an algorithm for crash report classification with 61.9% improvement over current algorithm for the android rider app codebase, and 48.9% for the iOS partner app codebase.
- › Enhanced current crash report processing infrastructure to allow for manual resolution of redundant crash report classification.

May 2015– **Kensho**, Cambridge, MA

Aug 2015 *Back-end Software Engineering Intern*

- › Created a “smart” newsfeed using natural language processing techniques to categorize CNBC articles by sector.
- › Built a Go backend to allow browser tty-access into docker containers.
- › Built a service for scheduling recurring scarping jobs, un-normalizing and stitching data from online trends

May 2013– **Meta**, Menlo Park, CA

Aug 2013 *Infrastructure Software Engineering Intern*

- › Worked on tools to measure Meta’s capacity for efforts in energy efficiency, disaster recovery, and site operations.
- › Developed software to load-test front-end cluster machines, as well as a user interface to model cluster and machine behavior as function of load and monitor/control on-going load-tests.

May 2012– **Labtiva**, Cambridge, MA

Aug 2012 *Back-end Software Engineering Intern*

- › Developed a data-mining algorithm for searching large sequences of multilingual text, in which content is arbitrarily interrupted by noise and white-space is arbitrarily missing. The algorithm was intended to translate highlight markings between differently formatted versions of the same PDF for a to-be released feature, estimated to be used heavily on both client and server sides.

🎵 MUSIC

I am currently a performing musician.

🔗 yanivyacoby.github.io/music

🎧 DISCOGRAPHY:

Jan 2024 **Live from our Living Room** 🎵

Triga’s debut EP, featuring original and traditional tunes from Sweden to Germany to Quebec.

May 2016 **The Corn Knight** 🍏 🎧 📺 📺

An hour-long story piece for marimba-piano duo, co-composed and performed with pianist Chase Morrin, under the guidance of Vijay Iyer. The piece is informed by a fictional narrative and composed of many short pieces, like chapters in a book.

July 2021 **All Over The Map** 🎵 🍏 🎧 🗣️

A collaboration with Blue Thread, lead by vocalist Cristi Catt and flutist Nikola Radan, featuring medieval Galago-Portuguese cantigas, as well as Galician and Sephardic love songs from the Iberian Peninsula, reviving melodies from ancient manuscripts.

Jan 2020 **The Boston Imposters** 🍏 🎧 🗣️

Collaboration with folk singer/songwriters The Boston Imposters (Maire Clement and Davey Harrison). Recorded on tracks “Periphery”, “Mournful Dove” and “Old Sea-Walls”.

Aug 2017 **Gapi** 🍏 🎧

Collaboration with pianist Chase Morrin and gayageum-player Do Yeon Kim. Recorded on track “Heung”.

✂️ CURRENT/RECENT COLLABORATIONS:

Since **Triga** 🎵 🗣️

Jan 2020 Trio with Eric Boodman (fiddle) and Anna Breger (baroque violin & nyckelharpa). Original and traditional music rooted in traditions from Austria to Sweden to Quebec.

Since **Duo with Sunniva Brynnel (accordion & voice)** 🗣️

Jan 2016 Original and traditional Celtic music, focusing particularly on the Swedish and Irish folk music traditions.

Since **Duo with Eric Boodman (fiddle)** 🗣️

Dec 2017 Original and traditional Celtic music, focusing particularly on Quebecois and Irish folk music traditions.

Since **Blue Thread** 🎵

Jun 2017 A collaboration with vocalist Cristi Catt and flutist Nikola Radan, focusing on medieval Galago-Portuguese cantigas, as well as Galician and Sephardic love songs from the Iberian Peninsula, reviving melodies from ancient manuscripts.

Since **Fade Blue** 🗣️

Jan 2018 A collaboration with Julian Loida (percussion), Lily Honigberg (fiddle) and James Heazlewood-Dale (bass), focusing on the parting from the Irish and American Old-Time folk traditions.

🎤 RECENT PERFORMANCES (ABRIDGED):

Jan 27 **Triga @ Northern Roots Music Festival**

2024 With Eric Boodman (fiddle) and Anna Breger (nyckelharpa), playing original and traditional music rooted in traditions from Austria to Sweden to Quebec. Additionally led workshops on Irish bouzouki accompaniment and counterline improvisation.

Jan 12 **Triga @ Boston Celtic Music Festival, Club Passim**

2024 With Eric Boodman (fiddle) and Anna Breger (nyckelharpa), playing original and traditional music rooted in traditions from Austria to Sweden to Quebec.

May 31 **Triga @ Tunnel Vienna Live, Vienna, Austria**

2023 With Eric Boodman (fiddle) and Anna Breger (nyckelharpa), playing original and traditional music rooted in traditions from Austria to Sweden to Quebec.

Mar 8 **Museum Concert Series of Rhode Island**

Mar 5 **UMass Lowell Saab Center for Portuguese Studies**

2020 With Blue Thread “All Over the Map”, showcasing global ballads migrating through centuries and cultures, with local participation each stop of the way, from Portugal to Greece, India, the Ozarks and beyond.

Jan 17-18 **Boston Celtic Music Festival, Club Passim**

2020 With fiddler Eric Boodman – original and traditional Irish and Quebecois tunes.

Oct 6 **Adamant Community Club, VT**

2019 With accordionist/vocalist Sunniva Brynnel – original and traditional Swedish and Irish tunes.

Jul 10 **Fade Blue @ Watermelon Wednesdays**

2019 With Julian Loida (percussion), Lily Honigberg (fiddle) and James Heazlewood-Dale (bass).

Feb 9 **A Celtic Sojourn Live Radio Show, WGBH Studio**

2019 With accordionist/vocalist Sunniva Brynnel – original and traditional Swedish and Irish tunes.

Sep 23 **Milton.Live Easthampton Irish Festival**

2017 With fiddler Win Horan of Solas and pianist Utsav Lal.

Aug 26-30 **Blue Thread Portugal Tour**

2017 With vocalist Cristi Catt and flutist Nikola Radan, reviving medieval Galego-Portuguese songs. Performed at the Praca do Giraldo in Evora, Centro Cultural in Cascais and the Casa-Museu Medeiros e Almeida in Lisbon.

Jul 5 **Featured Showcase Artists @ Zeltsman Marimba Festival**

2017 With pianist Chase Morrin, invited to perform original and improvised music from debut album *The Corn Knight*.



SKILLS & INTERESTS

Code	Python, C, Java, Max/MSP
ML	Jax, DiffraX, NumPyro, PyTorch, Pyro
Web	HTML, JavaScript, CSS, SASS, Jekyll, JQuery, Flask
Languages	Hebrew and English (bilingual), Chinese (beginner)
Interests	Cycling, hydroponic agriculture, cats, hiking