

# Nicholas Brown

## Comprehensive Dossier Curriculum Vitae

### EDUCATION

- In-progress:
  - Part-time MS in Finance/MBA, Northeastern University, Boston (Expected December 2025, GPA: 3.7)
- Graduated:
  - MS in Information Design and Visualization, Northeastern University (GPA: 3.7)
  - PhD in Computer Science, University of California, Los Angeles (GPA: 3.7)
  - MS in Computer Science, University of California, Los Angeles (GPA: 3.7)
  - BA in Biochemistry and Molecular Biology, University of California, Santa Cruz

### EXPERIENCE

- Northeastern University - College of Engineering (2022-Present): Associate Teaching Professor, teaching AI and machine learning courses.
- AI for Education Project, Northeastern University (2023-Present): Project Lead, integrating AI into educational practices.
- Institute for Experiential AI, Northeastern University (2022-Present): Affiliated Faculty, developing workshops and fostering business collaborations.
- Northeastern University - College of Engineering (2017-2022): Assistant Teaching Professor, teaching AI and machine learning courses.
- Northeastern University AI Skunkworks (2019-Present): Founding Partner and Faculty Mentor.
- Kinesso (Sep 2019 – 2022): Collaborator, built reinforcement learning based ad buy optimizer.
- Squark (Mar 2019 – Present): Collaborator, developed the original AutoML platform.
- Broad Institute of MIT and Harvard (Jun 2019 – Sep 2020): Collaborator, published research.
- Harvard Medical School (Jul 2019 – Oct 2019 & Jul 2017 – Jan 2018): Course Specialist & Part-Time Post Doc in Deep Learning.
- Northeastern University - College of Computer Science (2013-2017): Lecturer in C++, Game Programming, and Algorithms.
- University of California, Los Angeles & Santa Monica College (2005-2013): Lecturer and Teaching Assistant in Programming with C++.
- The Art Institute, Hollywood & LA Film School (2010-2013): Lecturer in Game Programming.

### OBJECTIVE

With a rich background in computational biology, AI, visualization, and game development, I aim to bridge academic research with practical applications in AI and education. My work at Northeastern and collaborations with prestigious institutions highlight my commitment to transforming educational methodologies through AI.

### TEACHING EXPERIENCE

Developed and revamped several courses at Northeastern University, including:

- CSYE 7270: Building Virtual Environments
- CSYE 7370: Deep Reinforcement Learning Game Engineering
- INFO 7375: ST: AI Engineering Apps
- CSYE 7374: Special Topics: Computational Skepticism

# Nicholas Brown

## Comprehensive Dossier Curriculum Vitae

### Northeastern Courses

- *Coursera INFO 6205: Program Structure Algorithms*
- *CSYE 7270: Building Virtual Environments*
- INFO 6105: Data Sci Eng Methods
- INFO 6205: Program Structure Algorithms
- INFO 7390: Advances Data Sci/Architecture
- *CSYE 7370: Deep Reinforcement Learning Game Eng*
- DAMG 6210: Data Mgt and Database Design
- *INFO 7375: ST: AI Engineering Apps*
- *CSYE 7374: Special Topics: Computational Skepticism*
- INFO 6210: Data Mgt and Database Design
- CSYE 7245: Big Data Sys Int Analytics
- DA 5030: Intro Data Mining/Machine Lrn
- CS 3540: Game Programming
- CS 4300: Computer Graphics
- CS 4850: Building Game Engines
- CS 5850: Advanced Building Game Engines
- DS 6020: Collect/Store/Retrieve Data
- DS 6030: Intro Data Mining/Machine Lrn
- CS 4800: Algorithms Data

### UCLA Courses

- CS 31 Programming in C++

### Santa Monica College Courses

- CS 52 Programming in C++

### Arts Institutes Courses

- Programming in C++
- Game Programming

### LA Film School Courses

- Game Programming

### AWARDS AND RECOGNITIONS

- RISE Award 2022, COMPUTER AND INFORMATION SCIENCES
- Fostering Engineering Innovation in Education Award, Northeastern University (2021-22)
- Red Hat Academy Director's Award for 2020

### PUBLICATIONS

- Mapping the Typographic Latent Space of Digits  
A. A. Issak, S. Kakkar, S. Goetz, N. B. Brown, C. Harteveld

# Nicholas Brown

## Comprehensive Dossier Curriculum Vitae

The Eleventh International Conference on Learning Representations (ICLR), Kigali, Rwanda, May 2023

- DC-Art-GAN: Stable Procedural Content Generation using DC-GANs for Digital Art  
Rohit Gandikota, Nik Bear Brown (2022)  
[arXiv:2209.02847](https://arxiv.org/abs/2209.02847)
- Deep learning and alignment of spatially resolved single-cell transcriptomes with Tangram  
Raghav Avasthi, Ziqing Lu, Nik Bear Brown  
Nature Methods 18, 1352–1362 (2021)  
<https://doi.org/10.1038/s41592-021-01264-7>
- Typography-MNIST (TMNIST): an MNIST-Style Image Dataset to Categorize Glyphs and Font-Styles  
Nimish Magre, Nicholas Brown (2021)  
[arXiv:2202.08112](https://arxiv.org/abs/2202.08112)
- Adjusting for Bias with Procedural Data  
Shesh Narayan Gupta, Nik Bear Brown (2022)  
53rd annual international conference of the International Simulation and Gaming Association (ISAGA)
- Pro-DDPM: Progressive Growing of Variable Denoising Diffusion Probabilistic Models for Faster Convergence  
Paper Accepted to The 33rd British Machine Vision Conference, 21st - 24th November 2022, London, UK  
<https://bmvc2022.org/>

### *AI4ED Research (In Progress)*

Drafts of papers in progress can be found at <https://github.com/nikbearbrown/AI4ED/tree/main/Papers>.

- Enhancing Trust in LLMs: Algorithms for Comparing and Interpreting LLMs  
Megha Patel, Himanshi Motwani, Nik Bear Brown  
Draft (2024)
- Evaluating Tools for AI in Education: A Structured Framework  
Dev Shah, Yash Pankhania, Himanshi Motwani, Megha Patel, Nik Bear Brown  
Draft (2024)
- The AI4ED Framework for Building Educational AI Tools  
Megha Patel, Himanshi Motwani, Nik Bear Brown  
Draft (2024)

### AI SKUNKWORKS

In my role as Project Lead for AI Skunkworks at Northeastern University, I have played a pivotal role in fostering an environment where technology and AI intersect to enhance research, creativity, and entrepreneurial acumen. My involvement with AI Skunkworks emphasizes my dedication to revolutionizing educational practices through experiential AI. This program, under my guidance, champions the principle of "learning AI by doing AI," offering students immersive, hands-on opportunities to apply AI in addressing real-world challenges. By facilitating mentorship between seasoned AI experts and emerging talents, and steering collaborative efforts on open-source projects, I have contributed to creating a dynamic community of learners and innovators. This initiative not only prepares students for the demands of the industry but also leverages AI to tackle broader societal concerns, reinforcing our leadership in the integration of AI into education. Through AI Skunkworks, we showcase our commitment to advancing educational methodologies with adaptive, interactive, and

# Nicholas Brown

## Comprehensive Dossier Curriculum Vitae

personalized learning experiences, as evidenced by our extensive repository of accomplishments and contributions to the field of AI. More information on AI Skunkworks can be found at [https://github.com/nikbearbrown/AI\\_Skunkworks/](https://github.com/nikbearbrown/AI_Skunkworks/)

### AI FOR EDUCATION PROJECT (AI4ED)

In my capacity as Project Lead for the AI for Education Project at Northeastern University, I have been at the forefront of integrating AI into educational practices, as detailed in the [AI for Education project \(AI4ED\) GitHub](#). This initiative, part of the Provost's Office AI for Education (AI4ED), underscores my commitment to enhancing educational methodologies through adaptive, interactive, and personalized learning experiences.

### TEACHING & LEARNING xAI PROJECT

As the AI Lead for the Teaching & Learning xAI project at Northeastern University, my role is central to pioneering efforts in transforming higher education through the innovative use of generative AI. Working closely with the AI for Education Project (AI4ED), our collaboration is instrumental in advancing educational methodologies, focusing on creating a more adaptive, interactive, and personalized learning experience. The Teaching & Learning xAI project, under the strategic guidance of Connie Yowell and David Madigan, benefits significantly from my expertise in AI to develop and refine AI-driven educational approaches. My leadership ensures the project's direction is aligned with Northeastern's vision of integrating AI into academia ethically and effectively, leveraging my extensive experience in AI to bridge technology with human creativity. This initiative not only aims to enhance the educational landscape at Northeastern but also sets a precedent for the future of education globally, emphasizing the importance of trust and interpretability in AI applications.

### PROFESSIONAL GOALS

My goals center on advancing AI in education through developing open-source tools, pioneering innovative educational methods, and promoting ethical AI development and use, aiming to transform education and make learning more personalized and accessible.