

EDUCATION

Columbia University

Ph.D. in Computer Science

New York, USA

Starting Fall 2021

- *Advisor*: Shuran Song

Columbia University

B.S. in Computer Science, GPA: 3.86/4.00, Cum Laude

New York, USA

2017–2021

- *Selected Coursework*: Representation Learning, Foundations of Graphical Models, Computation and the Brain, Evolutionary Computation, Physically Based Computer Animation, Computer Graphics, Operating Systems, Quantum Computing, Computational Complexity, Causal Inference

British International School

A Levels in Mathematics, Physics, Chemistry, Biology, GPA: 4.00/4.00

Hanoi, Vietnam

2015–2017

- National Highest Score in Cambridge International A Level Mathematics
- National Highest Composite Score in 4 Cambridge International A Levels

PUBLICATIONS

Huy Ha, Jingxi Xu, Shuran Song, “Learning a Decentralized Multi-arm Motion Planner”

2020 *Conference on Robot Learning (CoRL)*, [Webpage](#)

Huy Ha*, Shubham Agrawal*, Shuran Song, “Fit2Form: 3D Generative Model for Robot Gripper Form Design”

2020 *Conference on Robot Learning (CoRL)*, [Webpage](#)

*indicates equal contribution

EXPERIENCE

Columbia Robovision Lab

Undergraduate Researcher, advised by Professor Shuran Song

New York, NY

Oct 2019 - Present

- Research on reinforcement learning and self-supervised learning for dynamic cloth manipulation, multi-arm motion planning, and customized gripper design automation
- Develop, maintain, and onboard members on lab’s Blender visualization tools

Altair Engineering

Virtual Interface Development Intern, supervised by Dennis Ward

Troy, Michigan

May 2019 - Aug 2019

- Lead research on game engines for simulation-driven design software R&D
- Developed a collaborative hybrid desktop-VR CFD post-processor using Unity (C#) and Unreal (C++)
- Optimized graphics pipeline to support large CFD meshes (4.5 million vertices) at 60 fps
- Designed client-server architecture for asynchronous data loading and synchronous interactions and visualizations

Computer Graphics and User Interfaces Laboratory

Undergraduate Researcher, supervised by Carmine Elvezio

New York, NY

Jan 2019-May 2019

- Implemented high-performance-physics based VR interactions with deformable objects and fluids
- Analyzed and summarized state of the art techniques in real-time fluid simulation

Vietnam National University

Research Assistant, supervised by Professor Long Dang

Hanoi, Vietnam

Apr 2016 - Nov 2016

- Researched ZnO Electron Transport Layer in Tin Perovskite Solar Cells using SCAPS 3302 simulator
- Synthesized and analyze power conversion efficiency of Dye-sensitized Solar Cells

HONORS AND AWARDS

Theodore R. Bashkow Award , Columbia University	Apr 2021
Dean's Fellow , Columbia University	Feb 2021
Bonomi Summer Scholars , Columbia University	May 2020
Best Presentation Paper , International Symposium on Frontiers in Materials Science	Nov 2016
Silver , UK Maths Challenge Senior	Oct 2016

TEACHING

Teaching Assistant	Fall 2020
COMS W4167: Physically Based Computer Animation	Columbia University
<ul style="list-style-type: none">- Assisted in designing and grading final exam- Held weekly office hours- Lead efforts in refactoring and documenting homeworks and automated grading scripts- Organized collision detection algorithm design competition on Google Cloud	
Head Teaching Assistant	Spring 2019 - Fall 2020
Artificial Intelligence's MicroMasters: Animation and CGI Motion	Columbia University Edx
<ul style="list-style-type: none">- Lead development of new course material and resources- Onboard and mentor new TA members- Support learners through the online discussion forum	

PROJECTS

Neural Temporal Radiance Fields	Dec 2020
Huy Ha* , Su-ji Park*	COMS 6998: Representation Learning
<ul style="list-style-type: none">- Developed an algorithm for encoding dynamic and visual priors into implicit 4D representations for novel view synthesis and dynamics prediction with meta-learning	
Deep Bisimulation Dreaming: Combating Distractions with State Abstractions	Dec 2020
Huy Ha , Sian Lee-Kitt, William Zheng, PDF	STCS 6701: Foundations of Graphical Models
<ul style="list-style-type: none">- Studied probabilistic embedding with bisimulation metrics in the context of latent space dreaming for sample efficient and generalizable reinforcement learning	
Temporal Difference Learning Is Not All You Need	Dec 2020
Huy Ha , Sian Lee-Kitt, PDF	COMS 6998: Computation and the Brain
<ul style="list-style-type: none">- Reviewed the role of dopamine in probabilistic computations and model-based learning in biological agents	
Coevolution of Morphology and Policy Implicit Neural Functions	Dec 2019
Huy Ha , Project webpage	MECS 4510: Evolutionary Computation
<ul style="list-style-type: none">- Studied neural networks as genotypes, their mutation operators, and mechanisms for encoding priors for morphology and policy evolution of soft robots- Achieved robots with complex hopping gaits achieving running speeds up to 1.10 m/s	
GAN for Pseudo-Lidar generation in 3D Object Detection	Dec 2019
Rahul Subbiah, Huy Ha	COMS 6998: Topics in Robotic Learning
<ul style="list-style-type: none">- Extended state of the art Pseudo-Lidar approaches with Generative Adversarial Networks- Improved downstream object detection accuracy for cars in the KITTI benchmark	
Quantum Support Vector Machines	Nov 2019
Huy Ha* , Haley So*	IEOR 8100: Seminar on Quantum Computing
<ul style="list-style-type: none">- Lectured on techniques to improve Quantum SVM complexity over classical SVMs- Implemented Quantum SVM using Qiskit	
M3ch Planet	May 2019
Huy Ha , Matthew Chan, Mandeep Bhutani, Conder Shou, Mohammed Abdelmalik	COMS 4172: 3D UI and AR
<ul style="list-style-type: none">- Lead a team of 5 developers in an augmented reality multiplayer strategy action game using Vuforia and Unity- Designed game's 3D models and animations in Blender	

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ACADEMIC SERVICE

Reviewer, ICRA 2021

SKILLS

Technologies: Python, C/C++, C#, Java, Unity3D, Unreal, Javascript, HTML & CSS, Matlab

Graphic Design: Blender, Photoshop, Lightroom, Illustrator, Premiere Pro

LANGUAGES

Vietnamese: Native

English: Fluent **TOEFL:** 115/120

EXTRACURRICULAR ACTIVITIES

- Peakamo Productions**, Founder, Director, Cinematographer, Producer 2015–2019
- Lead film and photography studio, specializing in short films, commercials, events, and music videos
 - Won 5 awards at Olympia Film Festival 2016, including Best Film, Best Directing, and Best Cinematography
 - Conducted client outreach and managed financials of the production
- Selected Works:
- Columbia College class of 2018 Graduation ([link](#))
 - Viet Muay Thai Gym Promo ([link](#))
- Columbia Photography Association**, Staff Photographer Jan 2018–present
- Offered client photoshoots for portraits, events, dance, and weddings
 - 4 photographs won for Columbia Student Arts competition
- Columbia Spectator**, Photographer Jan 2018–May 2018
- Covered shows and basketball games for college newspaper (see [published pictures](#))
- MakeSPP**, Mentor Oct 2018, Oct 2019