

# Tomer Weiss

Assistant Professor

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## I. Education

- 2013–2018 **Ph.D., Computer Science**, University of California, Los Angeles.  
2013–2015 **M.S., Computer Science**, University of California, Los Angeles.  
2009–2012 **B.S., Computer Science**, Tel Aviv University, Tel Aviv, Israel.

## II. Research Interests

- Machine Learning** statistical and crowd sourced learning, deep reinforcement learning, real-time optimization
- Graphics and Vision** physics-based simulation and modeling, multi-agent dynamics, scene synthesis, gpu algorithms, virtual/mixed reality

## III. Experience

### A. Academic Appointments

- 2020-Present **Assistant Professor**,  
*Department of Informatics*, Ying Wu College of Computing,  
New Jersey Institute of Technology.  
Newark, NJ
- 2019 **Researcher in Residence**,  
*Institute for Computational and Experimental Research in Mathematics, (ICERM)*,  
Spring Semester Program on Computer Vision,  
Brown University.  
Providence, RI

### B. Non-Academic Employment

- 2018-2019 **Computer Vision Researcher**, Wayfair, Boston.  
Sum. 2017 **Researcher**, Autodesk Research, San Francisco.  
Sum. 2016 **Machine Learning Researcher**, A9.com (Amazon Search), Palo Alto.  
Sum. 2015 **Software Engineer**, Bloomberg LP, New York.  
2012-2013 **Software Engineer**, Parametric Technology Corp.  
2011-2012 **Software Engineer**, Datonics LLP.

## IV. Awards and Honors

- 2025 **Best Presentation Award**, ACM SIGGRAPH Symposium on Animation, Vancouver, BC, Canada
- 2025 **Best Student Paper Award**, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, Jersey City, NJ
- 2017 **Best Paper Award**, 10th International ACM SIGGRAPH Conference on Motion in Games, Barcelona, Spain

- 2018 Internationally Selected Invitee, ACM SIGGRAPH ASIA Doctoral Consortium, Tokyo, Japan
- 2018 Finalist, ACM SIGGRAPH Thesis Fast Forward, Vancouver, Canada
- 2016-2017 Graduate Division Fellowship, UCLA
- 2016-2017 Honorarium Award for Service, Computer Science Department, UCLA
- 2013-2014 Doctoral Student Fellowship, Computer Science Department, UCLA

## V. Publications

Dashed underlines: students who were/are my advisees

### A. Dissertations

- 2018 **A Constraint-Based Approach to Crowd Simulation and Layout Design**

T.Weiss

Doctoral Thesis, UCLA

- 2016 **Make it Float: Optimizing Design of Physical Objects for Fabrication**

T.Weiss

Master's Thesis, UCLA

### C. Book Chapters

- 2024 **Real-Time Simulation of Massive Crowds**

T.Weiss

GPU Zen 3, Black Cat Publishing, Encinitas, CA.

ISBN: 979-8344236797

- 2020 **Style Similarity as Feedback for Product Design**

M.Schwartz, T.Weiss, E.Ataer-Cansizoglu, and J.Chi,

Morphological Analysis of Cultural DNA, Springer, New York.

Published: September 24, 2020, pp 27—42, ISBN: 978-981-15-7707-9

### D. Refereed Journal Articles

*Accepted*

- 2025 **Projective Multi-Agent Dynamics**

T.Weiss

ACM SIGGRAPH Symposium on Motion Interaction and Games (MIG), Zurich, Switzerland, Dec 3-5

- 2025 **Foveated Animations for Efficient Crowd Simulation**

Florin-Vladimir Stancu, T.Weiss, and Rafael Kuffner dos Anjos

ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D), Jersey City, NJ, May 7-9

**Best Student Paper Award**

- 2025 **Generalized, Dynamic Multi-agent Torso Crowds**

B.Talkdar and T.Weiss

ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D), Jersey City, NJ, May 7-9

*Published*

- 2024 **Learning Crowd Motion Dynamics with Crowds**

B.Talukdar, Y.Zhang, T.Weiss

Proceedings of the ACM on Computer Graphics and Interactive Techniques<sup>1</sup>

Vol. 7, Issue 1, pp 1–17. Published: May 13, 2024

- 2023 **Formation-Aware Planning and Navigation with Corridor Shortest Path Maps**  
R.Sharma, T.Weiss, and M.Kallmann  
Computer Graphics Forum, Vol. 43, Issue 1, February 2024. Published: December 4, 2023
- 2023 **Fast Position-based Multi-Agent Group Dynamics**  
T.Weiss  
Proceedings of the ACM on Computer Graphics and Interactive Techniques<sup>1</sup>  
Vol. 6, Issue 1, pp 1–15. Published: May 16, 2023
- 2022 **Reconstructing room scales with a single sound for augmented reality displays**  
B.Liang, A.Liang, I.Roman, T.Weiss, B.Duinkharjav, J.Bello, Q.Sun  
Journal of Information Display, 24(1), 1–12. Published: Nov. 15, 2022
- 2020 **Image-Driven Furniture Style for Interactive 3D Scene Modeling**  
T.Weiss, I.Yildiz, N.Agarwal, E.Cansizoglu, J.Choi  
Computer Graphics Forum (Proc. of Pacific Graphics), Vol. 39, Issue 7, pp. 57–68.  
Published: Nov. 24, 2020
- 2019 **Fast and Scalable Position-Based Layout Synthesis**  
T.Weiss, A.Litteneker, N.Duncan, M.Nakada, C.Jiang, L.Yu, D.Terzopoulos  
Short version in IEEE Conference on Computer Vision and Pattern Recognition (CVPR)  
workshop on Vision Meets Cognition, June 18–22 2018  
IEEE Transactions on Visualization and Computer Graphics (TVCG), Vol. 25, Issue 12, pp.  
3231–3243. Published: Dec. 1, 2019
- 2018 **Deep Learning of Biomimetic Sensorimotor Control for Biomechanical Human Animation**  
M.Nakada, T.Zhao, H.Chen, T.Weiss, D.Terzopoulos  
ACM Transactions on Graphics (SIGGRAPH), Vol. 36, Issue 4, Article 56, pp 1—15,  
Published: Jul. 30, 2018
- 2018 **Position-Based Real-Time Crowd Simulation of Large Crowds**  
T.Weiss, A.Litteneker, C.Jiang, D.Terzopoulos  
Computers & Graphics, Vol. 78, pp.12–22. Special Section on *Motion in Games 2017*,  
Published: Oct. 31, 2018

## E. Peer Reviewed Conference Publications

### *Published*

- 2025 **Simulating Ant Aggregation Dynamics**  
M.Loges and T.Weiss  
To appear, ACM SIGGRAPH Symposium of Computer Animation, Vancouver, Canada, August  
8–10
- 2024 **Crowd-sourced Evaluation of Combat Animations**  
Y.Zhang and T.Weiss  
IEEE International Conference on Artificial Intelligence and eXtended and Virtual Reality  
(AIxVR), pp. 60–65, Los Angeles, CA, Jan. 17–19
- 2022 **LayoutEnhancer: Generating Good Indoor Layouts from Imperfect Data**  
K.Leimer, P.Guerrero, T.Weiss and P.Musalski  
ACM SIGGRAPH Asia Conference Papers, 27:1–8, Daegu, South Korea, Dec. 6–9

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<sup>1</sup>Special issue published as a journal paper of Interactive 3D Graphics and Games (I3D)

- 2020 **Plane-Based Local Behaviors for Multi-Agent 3D Simulations with Position-Based Dynamics**  
 R.Sharma, T.Weiss, and M.Kallmann  
 IEEE AIVR 2020, MARCH Workshop: Modeling and Animating Realistic Crowds and Humans, pp. 214–217, Virtual, Dec. 14-18
- 2020 **Interactive and Scalable Layout Synthesis with Design Templates**  
H.Farooki, E.Ataer-Cansizoglu, J.Chi, T.Weiss  
 IEEE AIVR 2020, Industry-track paper, pp. 235–238, Virtual, Dec. 14-18
- 2020 **Interactive Design of Gallery Walls via Mixed Reality**  
 H.Huang, Y.Zhang, T.Weiss, R.Perry, L.Yu  
 IEEE AIVR 2020, Session on AI for new interaction, experiences, and applications in VR and AR, pp. 17–26, Virtual, Dec. 14-18
- 2019 **Room Style Estimation for Style-Aware Recommendation**  
 E.Cansizoglu, H.Liu, T.Weiss, A.Mitra, D.Dholakia, J.Chi, D.Wulin  
 IEEE International Conference on Artificial Intelligence & Virtual Reality (AIVR), pp. 267–2673, San Diego, CA, Dec. 9-11
- 2017 **Position-Based Multi-Agent Dynamics for Real-Time Crowd Simulation**  
T.Weiss, A.Litteneker, C.Jiang, D.Terzopoulos  
 Proc. of the Tenth International ACM SIGGRAPH Conference on Motion in Games, 10:1–8, Barcelona, Spain, Nov 8-10  
 (Media: Gamasutra) Invited to contribute an extended blog version  
**Best Paper Award**
- 2017 **Automated Layout Synthesis and Visualization From Images of Interior or Exterior Spaces**  
T.Weiss, M.Nakada, D.Terzopoulos  
 IEEE Conference on Computer Vision and Pattern Recognition (CVPR) workshop on Vision Meets Cognition, pp. 41-47, Honolulu, Hawaii, July 21-26

## F. Peer Reviewed Abstracts and Posters

### *Published*

- 2025 **Simulating the Mechanics of Ant Swarm Aggregations**  
M.Loges and T.Weiss  
 Proceedings of the Special Interest Group on Computer Graphics and Interactive Techniques Conference Posters, 11:1–2, Vancouver, BC, Canada, August 10–14  
 Invited to participate in student research competition and technical papers program [Rare]
- 2025 **How to Break Crowd Simulation Algorithms**  
A.Chen and T.Weiss  
 Proceedings of the Special Interest Group on Computer Graphics and Interactive Techniques Conference Talks, 61:1–2, Vancouver, BC, Canada, August 10–14
- 2023 **Position-based Torso Crowds**  
B. Talukdar, Y.Zhang, T.Weiss  
 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) Posters, Philadelphia, PA, May 8-10
- 2023 **Learning to Simulate Crowds with Crowds**  
B. Talukdar, Y.Zhang, T.Weiss  
 ACM SIGGRAPH Posters, 6:1–2, Los Angeles, CA, Aug. 6-10

- 2022 **Visual clutter: The role of background texture, set size, and item organization**  
Y. Semizer, T.Weiss  
Journal of Vision, Issue 23, Vol. 9 (2023): pp. 4940, Vision Sciences Society Annual Meeting Abstract, St. Petersburg, FL, May 19-24, 2023
- 2022 **Learning Anticipatory Multi-Agent Navigation with Position-Based Deep Reinforcement Learning**  
B. Talukdar, T.Weiss  
Society for Industrial and Applied Mathematics (SIAM) Conference on Mathematics of Data Science, abstract, San Diego, CA, Sep. 26-30
- 2022 **Comparing Visual Clutter Metrics: What Feature is Important?**  
Y.Semizer, T.Weiss  
American Psychological Association, Poster, Aug. 4-6
- 2022 **Image-Driven 3D Object Style Estimation**  
T.Weiss, I.Yildiz, N.Agarwal, and E.Ataer-Cansizoglu  
Society for Industrial and Applied Mathematics (SIAM) Conference on Imaging Science, abstract, Virtual, Mar. 21-25
- 2020 **3D Behaviors for Multi-Agent Simulations with Position-Based Dynamics**  
R.Sharma, T.Weiss, M.Kallmann  
Short version in ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, Virtual, Sep. 15-17
- 2019 **Implementing Position-Based Real-Time Simulation of Large Crowds**  
T.Weiss  
MARCH Workshop on Modeling and Animating Realistic Crowds and Humans, IEEE International Conference on Artificial Intelligence & Virtual Reality (AIVR), pp. 306–3061, San Diego, CA, Dec. 9-11
- 2017 **Position-Based Multi-Agent Dynamics for Real-Time Crowd Simulation**  
T.Weiss, A.Litteneker, C.Jiang, D.Terzopoulos  
Short version in Proc. of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation, Los Angeles, CA, July 28-30, 27:1–2

## G. Published Software

Crowd Simulation Method, Open Source, <https://github.com/tomerwei/pbd-crowd-sim>

## H. Unrefereed Publications

- 2022 **ATEK: Augmenting Transformers with Expert Knowledge for Indoor Layout Synthesis**  
K.Leimer, P.Guerrero, T.Weiss and P.Musalski  
ArXiv

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## VI. Professional Presentations

### *Invited Talks*

- Nov. 2025 Learning to Simulate AI Agent Dynamics at Scale  
Invited Speaker, Department Seminar, Stony Brook University, Stony Brook, NY
- Oct. 2025 Learning to Simulate AI Agent Dynamics at Scale  
Invited Speaker, Computer Graphics Seminar, Columbia University, New York, NY
- Feb. 2025 Learning to Simulate Virtual AI Agents at Scale  
Invited Speaker, Games Division, University of Utah, Salt Lake City, UT
- Nov. 2024 Learning to Simulate AI Agent Dynamics at Scale  
Invited Speaker, Computer Science Department, University of Texas San Antonio, TX

- Dec. 2023 Next-Generation Learning for 3D Scene Synthesis at Scale  
Invited Speaker, Computer Science Department, Stevens Institute of Technology, NJ
- Apr. 2023 Learning Deep Representations for Collective Behaviors  
Invited Speaker, Institute for Future Technologies, New Jersey Institute of Technology, NJ
- Oct. 2022 Interactive Multi-Agent Dynamics Simulation for Physical and Virtual Worlds  
Invited Speaker, Computer Science and Engineering colloquium, University of Connecticut, Storrs, CT
- Sep. 2022 Interactive Multi-Agent Dynamics Simulation for Physical and Virtual Worlds  
Invited Speaker, Department of Electrical and Computer Engineering, Stevens Institute of Technology, NJ
- May 2022 Virtual Content Synthesis: From Spaces to Multi-Agent Dynamics  
Invited Speaker, Toyota Technological Institute, Chicago
- May 2022 Creating virtual spaces with computational interior design and deep learning  
Invited Speaker, Computer Graphics Seminar in the Courant Institute of Mathematical Sciences, New York University, New York
- Jan. 2022 Fast Virtual Content Synthesis: From Spaces to Pedestrian Motion Dynamics  
Invited Speaker, Cambridge Mobile Telematics, Boston
- Nov. 2021 Real-Time Virtual Content: From Spaces to Crowd Dynamics  
Presentation, MARCH Workshop on Modeling and Animating Realistic Crowds and Humans, IEEE International Conference on Artificial Intelligence & Virtual Reality (AIVR)
- Sep. 2021 Fast Virtual Content Synthesis: From Spaces to Crowds  
Invited Speaker, Computer Science and Engineering  
UC Riverside
- Jul. 2021 Creating virtual spaces with computational interior design and deep learning  
Invited Speaker, Artificial Intelligence Division  
USC Information Sciences Institute
- Feb. 2021 Bridging the Gap between Physical and Virtual Reality  
Invited Speaker, Computer Science Department  
UC Davis
- Oct. 2020 Bridging the Gap between Physical and Virtual Reality  
Invited Lecture, SIG Research Center for Computer Graphics  
University of Pennsylvania
- Apr. 2020 Bridging the Gap between Physical and Virtual Reality  
PIXL seminar talk, Computer Science Department  
Princeton University
- Nov. 2019 Bridging the Gap between Physical and Virtual Reality  
School of Computer Science Weekly Seminar  
Interdisciplinary Center Herzliya (IDC)
- Nov. 2019 Bridging the Gap between Physical and Virtual Reality  
Faculty of Engineering Seminar  
Bar Ilan University
- Nov. 2019 Wayfair: Finding your perfect home with data and computational interior design  
Data Science Initiative  
Harvard University
- Oct. 2019 Bridging the Gap between Physical and Virtual Reality  
Computer Graphics Group Seminar  
UMass Amherst

- May 2019 Bridging the Gap between Physical and Virtual Reality  
Computer Graphics Group Seminar  
CSAIL, MIT
- Apr. 2019 Bridging the Gap between Physical and Virtual Reality  
Guest Lecture  
Dept. of Computer and Information Science, Fordham University
- Mar. 2019 Bridging the Gap between Physical and Virtual Reality  
Colloquia  
Dept. of Computer Science, University of Massachusetts Boston
- Mar. 2019 Bridging the Gap between Physical and Virtual Reality  
CS Seminar  
Dept. of Computer Science, Illinois Institute of Technology
- Mar. 2019 Bridging the Gap between Physical and Virtual Reality  
Research Seminar  
Dept. of Computer Science, University of North Carolina at Charlotte
- Mar. 2019 Bridging the Gap between Virtual and Physical Worlds  
Research Seminar  
Digital Worlds Institute, University of Florida
- Mar. 2019 Position-Based Multi-Agent Dynamics for Real-Time Crowd Simulation  
Guest Lecture  
Digital Worlds Institute, University of Florida
- Mar. 2019 Powering the Next Generation of Human Learning with Immersive Virtual Environments  
Research Seminar  
Learning Sciences Cluster, University of Central Florida
- Mar. 2019 Bridging the Gap between Physical and Virtual Reality  
Research Seminar  
Dept. of Computer Science, University of Central Florida
- Feb. 2019 Bridging the Gap between Physical and Virtual Reality  
Colloquium  
Dept. of Computer Science, Old Dominion University
- Feb. 2019 Bridging the Gap between Physical and Virtual Reality  
Research Presentation  
Dept. of Informatics, New Jersey Institute of Technology
- Jan. 2019 Introduction to Functional Programming  
Guest Lecture  
Dept. of Computer Science, Loyola Marymount University
- Nov. 2018 A fast and scalable approach for simulating multi-agent crowds and for creating virtual layouts  
Computer Science Colloquium  
Dept. of Computer Science, Dartmouth College
- Oct. 2018 A fast and scalable approach for simulating multi-agent crowds and for creating virtual layouts  
Computer Science Colloquium  
Dept. of Computer Science, University of Massachusetts Lowell
- Oct. 2018 A fast and scalable approach for simulating multi-agent crowds and for creating virtual layouts  
Computer Graphics Colloquium  
Dept. of Computer Science, University of Pennsylvania

- Jun. 2018 Simulating virtual crowds with 100,000 agents in real-time on your laptop  
 Boston Computational Creativity Interest Group  
 Boston, MA
- Mar. 2018 Simulating virtual crowds with 100,000 agents in real-time on your laptop  
 Visual Computing and Interaction Seminar  
 Computer Science, Electrical Engineering, Media Arts and Technology (Jointly)  
 University of California Santa Barbara
- Mar. 2018 Simulating virtual crowds with 100,000 agents in real-time  
 Dept. Seminar Series  
 Dept. of Computer Science, University of Massachusetts Boston
- Mar. 2018 Simulating virtual crowds with 100,000 agents in real-time on your laptop  
 EECS Technical Seminar Series  
 Electrical Engineering and Computer Science, University of California Merced
- Feb. 2018 Position-based methods for real-time crowd simulation and modeling applications  
 Computer Graphics and Visualization group  
 School of Information and Computer Sciences, University of California Irvine
- Feb. 2018 Position-based multi-agent dynamics for real-time crowd simulation and modeling applications  
 Center for Visual Computing  
 Dept. of Computer Science and Engineering, University of California San Diego
- Dec. 2017 Position-based multi-agent dynamics for real-time crowd simulation  
 Graphics and Vision Seminar, hosted by Prof. Daniel Cohen-Or  
 School of Computer Science, Tel Aviv University

*Contributed Conference Presentations*

- May 2023 Fast Position-based Multi-Agent Group Dynamics  
 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, WA, USA, May 3-5.
- Feb. 2022 Computer Graphics & Vision at the New Jersey Institute of Technology ([Link](#))  
 Workshop on Sustainable Research Pathways for High-Performance Computing, Sustainable Horizons Institute, Rancho Mirage, CA
- Dec. 2020 Position-Based Real-Time Simulation of Large Crowds ([Media](#))  
 Workshop on Social Dynamics beyond Vehicle Autonomy, Institute for Pure & Applied Mathematics, UCLA
- Sep. 2020 Fast and Scalable Position-Based Layout Synthesis  
 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, Virtual, Sep. 14-18
- Dec. 2019 Implementing Position-Based Real-Time Simulation of Large Crowds  
 MARCH Workshop on Modeling and Animating Realistic Crowds and Humans,  
 IEEE International Conference on Artificial Intelligence & Virtual Reality (AIVR), Dec. 9-11
- Dec. 2018 A Constraint-Based Approach to Crowd Simulation and Layout Design  
 ACM SIGGRAPH Asia Doctoral Consortium  
 Tokyo, Japan, Dec 4
- Oct. 2018 Gallery Wall Synthesis and Visualization  
 International Conference on Predictive Applications and APIs, Boston, MA, Oct. 17
- Aug. 2018 A Constraint-Based Approach to Crowd Simulation and Layout Design  
 ACM SIGGRAPH Thesis Fast Forward, Vancouver, BC, Canada, Aug 14
- Nov. 2017 Position-Based Multi-Agent Dynamics for Real-Time Crowd Simulation  
 Proc. of the Tenth International ACM SIGGRAPH Conference on Motion in Games, Nov 8-10
- Jul. 2017 Position-Based Multi-Agent Dynamics for Real-Time Crowd Simulation  
 Proc. of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation, July 28-30

### *Other Presentations*

- Mar. 2019 Computing Community Consortium (CCC)  
Content Generation for Workforce Training workshop, March 14-15

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## VII. Teaching Experience

### A. Classes Taught

- Fall, Spr. **Computer Graphics for Visual Effects**, Informatics, NJIT.
- 2020-25 Covers current techniques and foundational algorithms in graphics, including: 2D/3D graphics, color, images and image processing, rendering technologies, ray tracing, physics-based simulation, animation, and artificial intelligence methods for virtual worlds. Class includes several assignments and a final project.
- Spr. 2022 **AI for Artificial Worlds**, Informatics, NJIT.  
Artificial worlds enables creators such as artists, programmers and scientists to realize their creative visions. This class is a seminar-oriented research course covering topics at the intersection of graphics, animation, and AI. This course will explore the recent research in AI, multi-agent simulation, artificial physics, content creation, including data-driven and deep learning methods.
- Spr. 2022/25, **Information Design Techniques**, Informatics, NJIT.
- Fall 2025 Introduction to interactive programming and design of graphics applications. Includes: user experience diagramming, feature-centered design, event-driven programming, user interfaces, graphics, animations, and interface integration. Projects focus on cross-platform delivery of web applications using WebGL.
- Fall, Spr., **Programming Languages**, CS, UCLA.
- Win. 2014-18 Basic concepts in design and use of programming languages, including abstraction, modularity, control mechanisms, types, declarations, syntax, and semantics. Study of several different language paradigms: OCaml, Python, Java, Scheme and Prolog.
- Spr. 2017 **Software Engineering**, CS, UCLA.  
Structured programming, program specification, program proving, modularity, abstract data types, composite design, software tools, software control systems, program testing, team programming.
- Win. 2016 **Software Construction Lab**, CS, UCLA.  
Fundamentals of open-source and other software tools and environments, used in upper-division computer science courses and in the software industry.
- Fall 2015 **Computer Science Freshman Seminar**, CS, UCLA.  
Introduction to principal topics and key ideas in computer science and engineering. Seminar includes assignments, independent study, and writing reports.

### B. Curriculum Development

#### *New Courses Developed*

- Spr. 2022 **AI for Artificial Worlds**, Informatics, NJIT.

#### *New Course Manuals Developed*

- Spr. 2020 **Computer Graphics for Visual Effects**, Informatics, NJIT.

### C. Research and Design Supervision

#### *Graduated Doctoral Students Students*

- 2020-2024 Yunhao Zhang, NJIT PhD in Information Systems, Crowd-Sourced Learning for Computer Graphics Applications

#### *Graduate Students*

- 2021- Bilas Talukdar, NJIT Informatics doctoral student, reinforcement learning of crowd movements

#### *Thesis Committees*

- 2024 Haotian Yin, NJIT Computer Science doctoral student, Advancing 3D Surface Reconstruction and Parametrization from Implicit

2024 Shen Fan, NJIT Computer Science doctoral student, Optimization of Quality and Efficiency for Reconstruction of Explicit 3D Geometry from Implicit Neural Representations of Geometric Shapes

2023 Bilas Talukdar, NJIT Informatics doctoral student, Deep Reinforcement Learning for Crowd Simulation with Crowds

2023 Li Yi, NJIT Informatics doctoral student, Learning Representations For Effective and Explainable Software Bug Detection and Fixing

2022- Yunhao Zhang, NJIT Informatics doctoral student, Sword fighting motion synthesis

2021 Raina Samuel, NJIT Informatics doctoral student, Android Security: Analysis and Applications  
*Doctoral Qualifying Exam Committees*

2025 Kaiheng Zhang, NJIT Urban Systems doctoral student, Challenges of Generative Models in Architectural Design for Urban Systems

2023 Li Yi, NJIT Informatics doctoral student, Learning Representations For Effective and Explainable Software Bug Detection and Fixing

2022 Dahlia Musa, NJIT Informatics doctoral student, Virtual Healthcare Wound Care

2022 Bilas Talukdar, NJIT Informatics doctoral student, Learning Anticipatory Multi-Agent Navigation with Position-Based Deep Reinforcement Learning

2022 Wenbo Wang, NJIT Informatics doctoral student, QA4GIS: A Novel Approach Learning to Answer GIS Developer Questions with API Documentation

2021 Yunhao Zhang, NJIT Informatics doctoral student, Sword Fighting Motion Synthesis

2021 Raina Samuel, NJIT Informatics doctoral student, Android Security: Analysis and Applications  
*Undergraduate Students*

2024 Matthew Loges, NJIT Computer Science student, Simulating Ant Aggregations

2024 Jeremy Convocar, NJIT Informatics student, Dense Flows in Crowd Simulation

2022 Audrey Bhea Obispo, NJIT Informatics student, Visualizing Collective Ant Dynamics

2022 Barr Beneli, NJIT Informatics student, Simulating Collective Ant Dynamics

2022 Elijah Brick, NJIT Computer Science student, Zebrafish Motion Dynamics Simulation

2021-2022 Tejas Thool, NJIT Digital Design student, Spatial design for Promoting Mental Health and Well-being

2021 Anuraag Godavari, NJIT Computer Science student, Parallel and GPU Programming Methods for 3D Crowd Simulation

2021 Gianncarlo Carrasco Perez, NJIT Computer Science student, floorplan sketch completion with machine learning

2020-2021 Muhammed Waggeh, NJIT Informatics student, ant swarm simulation

2020 Hameedullah Farooki, NJIT Computer Science student, computational methods for architectural layout synthesis

2020 Donovan Westwater, NJIT Informatics student, scalable crowd simulation methods in games  
*High School Students*

2024 Alexander Chen, Edge Cases in Crowd Simulation, The Academy of Math, Science and Engineering, Rockaway, NJ

2024 Derek You, Social Behaviors in Crowd Simulation, Edison Academy Magnet School, Edison, NJ

2022 Daniel Long, Simulating Agents Moving in Formations, Governor Livingston High School, Berkeley Heights, NJ

2022 Sai Voruganti, Estimating Style of 3D Shapes, John P. Stevens High School, Edison, NJ

## **VIII. Grants and Contracts**

- 2022 Learning Deep Representations of Collective Behavior, PI, NJIT-Ben Gurion Seed Grant, 11/2022 to 11/2023, 1 year, \$5,000
- 2022 Understanding Group Motion Dynamics with Reinforcement Learning, PI, NJIT Seed Research, 07/2022 to 06/2023, 1 year, \$7,500
- 2021 Predicting Future and Past Spatial Macroscopic Collective Behaviors, PI, NJIT-Ben Gurion Seed Grant, 03/2021 to 03/2022, 1 year, \$6,000

### **A. Grant Proposals Pending**

- 2025 Simulating Virtual Agents for Scalable Interactive Experiences, Sony, 06/2025 to 06/2026, 5 year, \$150,000
- 2025 CAREER: Simulating Living Systems for Computer Graphics Applications, PI, NSF, 6/2025 to 6/2030, 5 year, \$600,000

## **IX. Public Recognition**

- 2025 High School STEM Researcher and YWCC Mentor to Present at ACM SIGGRAPH Conference, New Jersey Institute of Technology [News](#)
- 2024 AI Research, New Jersey Institute of Technology [Media](#)
- 2020 Meet the 2019-2020 New Faculty in Ying Wu College of Computing, New Jersey Institute of Technology [News](#)
- 2020 Featured New Faculty, New Jersey Institute of Technology Magazine, [Spr. 2020](#)

## **X. Service Activities**

### **A. Department**

- AY 2023-2024 Informatics Department Faculty Candidate Interviewer.
- AY 2022-2023 Informatics Department Faculty Candidate Interviewer.
- AY 2022-2023 Informatics Department Chair Search Committee.
- AY 2020-2021 Informatics Department Faculty Hiring Committee.
- AY 2019-2020 Informatics Department Faculty Candidate Interviewer.

### **B. University**

- 2024 Participation in NJIT promotional video on AI Research [Video](#)
- AY 2022-2023 NJIT Faculty Senate voting member

### **C. Government**

- 2020 Panelist & Reviewer, National Science Foundation
- 2019 [White Paper](#) Contributor, Computing Community Consortium (CCC) Content Generation for Workforce Training workshop

### **D. Professional Societies**

- 2019- Member: SIAM, ACM, SIGGRAPH, IEEE

### **E. Conference Organizing and Program Committees**

- 2025 Conflict of Interest Coordinator, ACM SIGGRAPH Asia Technical Papers

- 2025 Program Committee Member, Eurographics Short papers  
2025 Program Committee Member, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D)  
2025 Local Chair, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D)  
2020, 25 Program Committee Member, Computer Animation and Social Agents (CASA)  
2022–25 Program Committee Member, IEEE Artificial Intelligence and Virtual Reality  
2022–25 Program Committee Member, IEEE International Conference on Computational Photography  
2021 Organizing Committee, Workshop on Modeling and Animating Realistic Crowds and Humans (MARCH), IEEE International Conference on Artificial Intelligence & Virtual Reality (AIVR)

## F. Peer Reviewing Activity

- 2025 Reviewer, Eurographics State-of-the-Art Reports (x1)  
2025 Reviewer, IEEE Transactions on Visualization and Computer Graphics (x1)  
2025 Reviewer, Computer Animation & Virtual Worlds (x1)  
2025 Reviewer, Springer Nature: Discover Applied Sciences (x1)  
2025 Reviewer, SIGGRAPH Asia (x2)  
2025 Paper Shepherd and Area Chair, IEEE Int. Conf. on Computational Photography (x1)  
2025 Reviewer, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) (x1)  
2025 Reviewer, SIGGRAPH (x1)  
2024 Reviewer, Computer Animation & Virtual Worlds (x1)  
2024 Reviewer, Eurographics (x1)  
2024 Reviewer, Conference on Human Factors in Computing Systems (CHI) (x1)  
2024 Reviewer, Computer Graphics Forum (x1)  
2024 Reviewer, SIGGRAPH Asia (x1)  
2024 Reviewer, SIGGRAPH (x2)  
2024 Reviewer, Computers and Graphics (x1)  
2023 Reviewer, Eurographics (x1)  
2023 Reviewer, Computer Animation & Virtual Worlds (x1)  
2023 Reviewer, Graphical Models (x1)  
2023 Reviewer, Computer Graphics Forum (multiple)  
2022 Reviewer, IEEE Conference on Virtual Reality (IEEE VR) (x1)  
2022 Reviewer, ACM Symposium on Virtual Reality Software and Technology (VRST) (x1)  
2022 Reviewer, MobileHCI 2022 Late Breaking Results (x1)  
2022 Reviewer, EuroViz poster abstracts (x1)  
2022 Reviewer, IEEE International Symposium on Mixed and Augmented Reality (ISMAR) (x1)  
2021 Reviewer, International Conference on Robotics and Automation (ICRA) (x1)  
2020 Reviewer, Eurographics (x2)  
2020 Reviewer, Computer Animation and Virtual Worlds  
2020 Panelist & Reviewer, National Science Foundation  
2019 Reviewer, Computers & Graphics  
2019 Reviewer, IEEE Access  
2019 PC Member, Computer Animation and Social Agents (CASA)  
2018 Reviewer, Eurographics  
2018 Reviewer, ACM SIGGRAPH Asia

2018 Reviewer, Elsevier Applied Mathematical Modelling

2018 Reviewer, Journal of Visualized Experiments

### G. Editorial Activity

2022 Guest Editor & Topic Coordinator, Frontiers Virtual Reality

### H. Other Activity

2018- Reviewer, UCLA Engineering Undergraduate Scholarships

2014–2017 UCLA, Graduate Admissions Committee

2014–2017 UCLA, Computer Science Dept. Graduate Visiting Day Committee  
Led Q&A panels, campus and department overview session

2014–2016 UCLA, Officer of the Engineering Graduate Student Division Association  
Coordinated student events, volunteering, and outreach. Also in-charge of industry collaboration, and industry sponsored events

2014–2016 UCLA, Acting President of the Computer Science Graduate Student Committee  
In charge of outreach, industry collaboration and student events. Coordinated company sponsored tea-time events, for recruiting computer science graduate students