Arman Maesumi

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Education

Brown University Aug 2021 - Present
Doctor of Philosophy, Computer Science

The University of Texas at Austin Aug 2018 - Aug 2021
Bachelor of Science, Computer Science

Publications & Preprints - Google Scholar

[1] **Arman Maesumi***, Mingkang Zhu*, Yi Wang, Tianlong Chen, Zhangyang Wang, Chandrajit Bajaj (2020) Learning Transferable 3D Adversarial Cloaks for Deep Trained Detectors.

[2] **Arman Maesumi** (2020) Playing Chess with Limited Look Ahead, *arXiv*, (manuscript).

[3] **Arman Maesumi** (2019) Triangle Inscribed-Triangle Picking, *The College Mathematics Journal*, 50:5, 364-371 (presented at TUMC 2017).

Research Experience

Learning 3D Adversarial Cloaks for Deep Object Detectors (Aug 2020 - Present) [PDF]
UT Austin Computational Visualization Center Lab, Advisor: Prof. Chandrajit Bajaj

- Proposed a novel adversarial attack method that cloaks humans from object detectors.
- Trained adversarial texture maps on 3D human meshes using differentiable rendering.
- Demonstrated the robustness of our adversarial attack under various camera angles and poses.

Playing Chess with Limited Look Ahead (May 2019 - June 2020) [PDF] [Code]
University of Texas at Austin, Advisor: Prof. Chandrajit Bajaj

- Developed a neural network architecture that learns to evaluate chess positions.
- Created a dataset of nearly 25 million labelled chess positions using Stockfish as a black box.
- Showed that the model is capable of accurately approximating Stockfish in various positions.

Triangle Inscribed-Triangle Picking (May 2017 - Nov 2019) [PDF]
University of Texas at San Antonio, Advisor: Prof. Cody Patterson

- Derived the probability density function and moments of the area of stochastically generated inscribed triangles. Moments of the area are listed in OEIS A279055.
- Presented preliminary findings at Texas Undergraduate Mathematics Conference (2017).
- Published paper in The College Mathematics Journal (2019).

Work Experience

Zilliant *Austin, TX*
Software Developer Intern (May 2019 - Jan 2020, May 2020 - Aug 2020)

- Created a company-wide solution that supplies start-up parameters to Zilliant's microservices.
- Developed a microservice that dynamically provisions AWS clusters when needed.
- Built a product feature that integrates Zilliant's products with Excel spreadsheets.

Projects

Vodder.gg - Highlight detection for live broadcasts *(Python, JavaScript, Flask), 2020*

- Utilized learning algorithms to detect highlights from time series data.
- Founded a website that provides tools for video editors contracted by live broadcasters.
- Tools offer highlight detection, excitement visualization, and exporting lengthy video segments.

MD5 Hackathon - 1st Place Entry: NARA *(JavaScript, Python), 2017*

- Developed NARA, a Facebook chatbot that provides aid to those affected by natural disasters.
- Presented to a panel of government officials at SxSW (South by Southwest, 3/10/2017).
- Awarded $15,000 grant from the Department of Defense to further develop the project.

Skills

Programming Languages:	Python, Go, Java, C++, C, JavaScript, TypeScript, Mathematica
Tools & Technologies:	PyTorch, TensorFlow, Keras, PyTorch3D, Docker, Git, LaTeX, Linux
Computer Graphics:	OpenGL, WebGL, Three.js, Blender, Cinema 4D, Octane, RealFlow
	3D Renderings: armanmaesumi.github.io/3d.html

Honors & Awards

- University Honors (Spring 2020), Dean's List (Spring 2018), President's List (Fall 2017).
- MD5 Hackathon: Awarded $15,000 grant from Department of Defense.