Javad Amirian, PhD

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Professional Experience

• **AI Research Scientist @ Stage11** Oct. 2024 - Present
At Stage11, a startup focused on developing Metaverse for concerts, I am leading the AI team to develop 3D reconstruction and rendering algorithms, especially for human avatars. I develop Gaussian Splatting and Neural Rendering solutions to unlock photorealistic avatars in virtual reality environments.

• **Postdoctoral Researcher @ ISIR (Robotics Lab - Sorbonne University)** Sep. 2023 - Oct. 2024
As part of the euROBIN project, I focused on developing social navigation algorithms for mobile robots such as Pepper and Tiago. This included integrating Vision-Language Models (VLMs) and LLMs into the robot navigation stack using ROS, in a collaboration project with the LAAS robotic center, to advance the robots capabilities for human-aware navigation.

• **CTO and Head of AI @ Vive Robotics** Mar. 2021 - Aug 2023
As the CTO and Head of AI, I led the development of the Vive Tennis, a tennis-ball-retriever robot that utilizes advanced Computer Vision and AI algorithms to efficiently navigate on the court, locate tennis balls, and identify players. My primary responsibility was to oversee the delivery of the MVP, by setting specific objectives for each principle. I guided the AI team in developing a high-fps video processing pipeline on-the-edge that maximizes the robot's agility while ensuring cost-effective hardware solutions to maintain an affordable product price.

• **Co-Founder of DecorAR @ Inria Startup Studio** April. 2022 - Mar. 2023
DecorAR is a tech project incubated at Inria Startup Studio to bring AI and Visual Recommendation to Augmented Reality environments. "*Interior Design by AI*" is the first platform being developed by DecorAR and it addresses the problem of finding compatible pieces of furniture among a vast database of products from different categories and brands. As a CTO, my job was to build ML models and develop the stack to make the PoCs accessible to early testers.

• **Doctoral Researcher @ Inria** (EU H2020 Project) Jan. 2018 - Jul. 2021
I contributed to developing tools for *Motion Prediction* of pedestrians around robots to enhance navigation in crowded environments. Leveraging GANs, I developed the models to predict multi-modal distributions of human trajectories. This work honed my expertise in ML frameworks like PyTorch and Keras, and large-scale data analysis, with significant focus on neural network training and visualization.

• **Computer Vision Engineer @ PixBall** (Previously Sepehr) May 2015 - Dec. 2017
At PixBall, I contributed in developing high-performance camera calibration and optimization algorithms, mostly in C++ and Matlab, as a computer vision engineer. I developed novel algorithms to handle camera lens distortion and this contributed significantly to improving the accuracy of embedding graphical overlays and virtual advertisements in sport content.

Technical Skills

- **Programming Languages:** Python, C/C++, Matlab, Swift
- **ML:** Pytorch, Keras (TensorFlow) — RNNs, GANs, CNNs, Transformers
- **AI and Robotics Tools:** OpenCV, Nvidia Jetson, ROS, CARLA, Webots, Unity, Gazebo
- **Software Development:** OOD, Concurrent and Multithread, Modular Programming
- **Version Control:** Git, GitHub

Education

• **PhD in Computer Science (Robotics and AI)** Jan. 2018 - Jul 2021
Inria (Rainbow Team), Rennes, France
Thesis: Human Motion Trajectory Prediction for Robot Navigation (CrowdBot)
Supervisors: Dr. Julien Pettré , Dr. Jean-Bernard Hayet
* Lab's nominated for the Best Thesis Award in Robotics

• **MSc in Computer Engineering (Artificial Intelligence)** Sept. 2012 - Sept. 2014
Sharif University of Technology, Tehran, Iran (1st Rank Technical University in Iran)
Thesis: Dynamic Motion Planning and Obstacle Avoidance for Simulated Autonomous Car in Webots
Supervisor: Dr. Mansour Jamzad

• **BSc in Electrical Engineering (Electronics)** Sept. 2007 - Sept. 2012
Shahid Behesti University (National University of Iran), Tehran, Iran

Publications

- Gheisari, M., **Amirian, J.**, Furon, T. Amsaleg, L., **"AggNet: Learning to Aggregate Faces for Group Membership Verification,"** Signal Processing: Image Communication, 2025.
- **Amirian, J.**, Abrini, M., Chetouani, M., **"Legibot: Generating Legible Motions for Service Robots Using Cost-Based Local Planners,"** International Conference on Robot and Human Interactive Communication (**ROMAN-2024**), Aug. 2024.
- Magri, P., **Amirian, J.**, Chetouani, M., **"Upgrading Pepper Robot Social Interaction with Advanced Hardware and Perception Enhancements,"** 16th International Conference on Social Robotics (**ICSR-2024**), Aug. 2024.
- Zhang, B., **Amirian, J.** Eberle, H., Pettré, J., Holloway, C., Carlson , T. **"Towards Safe Human-Robot Interactions in Crowds: Empirical Study of Pedestrian Dynamics with a Wheelchair and a Pepper Robot."** International Journal of Social Robotics (**SORO-2022**).
- **Amirian, J.**, Hayet, J. B., Pettré, J., **"What we see and What we don't see: Imputing Occluded Crowd Structures from Robot Sensing,"** (**Preprint-2021**).
- **Amirian, J.**, Zhang, B., Valente Castro, F., Baldelomar, J., Hayet, J. B., Pettré, J. **"OpenTraj: Assessing Prediction Complexity in Human Trajectories Datasets."** In Proceedings of the 15th Asian Conference on Computer Vision (**ACCV-2020**), Nov-Dec. 2020.
- van Toll, W., Grzeskowiak, F., Gandía, A.L., **Amirian, J.**, Berton, F., Bruneau, J., Daniel, B.C., Jovane, A. and Pettré, J., "**Generalized Microscopic Crowd Simulation using Costs in Velocity Space**,", In Symposium on Interactive 3D Graphics and Games (**I3D-2020**), May 2020.
- **Amirian, J.**, Van Toll, W., Hayet, J. B., Pettré, J. **"Data-Driven Crowd Simulation with Generative Adversarial Networks."** In Proceedings of the 32nd International Conference on Computer Animation and Social Agents (**CASA'19**), Jul. 2019.
- **Amirian, J.**, Hayet, J. B., Pettré, J., **"Social ways: Learning multi-modal distributions of pedestrian trajectories with GANs,"** IEEE Conference on Computer Vision and Pattern Recognition (**CVPR-2019**) Precognition Workshop, Jul. 2019.
- **Amiryan, J.**, Jamzad, M., **"Adaptive motion planning with artificial potential fields using a prior path,"** 3rd RSI International Conference on Robotics and Mechatronics (**ICROM**), 2015.
- Mazloum, J., Jalali, A., **Amiryan, J.**, **"A novel bidirectional neural network for face recognition,"** 2nd International eConference on Computer and Knowledge Engineering (**ICCKE**), 2012.

References

- **Dr. Mohamed Chetouani**
  Full Professor and Deputy Director at ISIR, Sorbonne University, Paris, France
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- **Dr. Julien Pettre**
  Research Scientist at Rainbow, Inria, Rennes, France
  Email: julien.pettre@inria.fr
- **Dr. Jean-Bernard Hayet**
  Researcher at CIMAT, Department of Computer Science., Guanajuato, Mexico
  Email: jbhayet@cimat.mx