Javad Amirian

Address
263 Avenue Général Leclerc
Campus de Beaulieu, Inria
35042 Rennes, France

Contact
Mobile: +33 6 32 38 50 50
mail: javad.amirian@inria.fr
http://`http://people.rennes.inria.fr/Javad.Amirian/`

Research Interests

- Computer Vision
- Deep Learning and Generative Models
- Crowd Simulation and Motion Planning

Education

PhD Candidate
Inria, Rennes, France   2018-2021
Title: Short-term Pedestrian Prediction for Robot Navigation in Crowded Space

Master of Science in Computer Engineering (Artificial Intelligence)
Sharif University of Technology, Tehran, Iran   2012 - 2014
GPA: 16.66/20
Ranked 11th in nationwide M.Sc. university entrance exam for Artificial Intelligence, Iran   2012

Bachelor of Science in Electrical Engineering (Electronics)
Shahid Behesti University (National University of Iran), Tehran, Iran   2007 - 2012
GPA: 15.44/20
Top 0.6% nationwide entrance exam of Iranian Universities, among more than 300,000 participants.   2007

Diploma in Mathematics and Physics
Tiz-Hooshan School (National Org for Development of Exceptional Talents), Kermanshah, Iran 2000 - 2007
GPA: 18.00/20

Professional Experience

Research and Develop @ CrowdBot   (European H2020 Research Project)   2018 - 2021
CrowdBot is a H2020 European project, aiming to develop platforms and algorithms to ensure safe navigation of social robots. My main task is to develop tools for "Trajectory Prediction" of the agents around the robot, in order to improve the robot navigation in crowded environments. For that, I'm working with Crowd Simulation algorithms and developing Deep Generative models.

Computer Vision Engineer @ PixBall   May 2015 - present
PixBall is an AI startup providing smart solutions for sports analysis. My job is developing image processing and vision algorithms and providing high-level API for UI programmers. I contributed to PixArt, a software video processing solution for inserting graphical overlays and virtual advertisements into sports content. One of the main challenges in such a system is to estimate camera calibration based on corresponding points in the soccer pitch. The vision engine is composed of several processing modules including the estimation of camera position, finding initial camera pose, using exhaustive search algorithms, shot boundary detection, tracking of camera calibration parameters, to which I contributed.

Computer Vision Expert @ Spad System Co.   April 2016 - present
Spadsystem is a startup founded in 2013, specialized in traffic management solutions. In 2016, I joined the team to start a project for automatic recognition of Iranian license plates (Didbaan). I developed a

ALPR engined based on an open-source software (OpenALPR). This software has been in use to manage the entrance and exit of cars from parking in multiple sites.

Co-Founder and Team Leader @ Cyrus (Team of Small-Size Soccer Robots) 2010 - 2015
I co-founded **Cyrus** under the supervision of Dr. Eslam Nazemi, during my undergrad study. I collaborated with more than 20 undergrad and graduate students that joined the team to develop hardware and software of the robots and prepare them for Robocup competitions. My main role was in the technical management of the project. Moreover, I contributed to designing the electronic boards, programming the robot firmware, and latterly developing codes for motion planning and playing of the robots. As research results of the project, we presented a new approach to improve the robot movements and compensating inaccuracies in robot building using a Fuzzy approach. We also proposed a new motion-planning algorithm for the robots, that is able to adapt the navigation parameters by optimizing multiple objectives, simultaneously.

Teaching Experience

- *Teaching Assistant* of Numerical Optimization course Spring 2017
  Dr. S. Hamid Amiri (Shahid Rajaee University)
- *Teaching Assistant* of Machine Vision course (CE-40687) Spring 2014
  Dr. Mansour Jamzad (Sharif University of Technology)
- *Teaching Assistant* of Digital Design course Spring 2010, Spring 2011
  Dr. Somayeh Timarchi (Shahid Beheshti University)
- *Lecturer* of Introduction to AVR Microcontrollers 2009-2011
  At Scientific Association of Electrical Engineering (Shahid Behshti University)

Selected Publications

- **Amirian, J.**, Zhang, B., Valente Castro, F., Baldelomar, J., Hayet, J. B., Pettré, J. (2020, Dec). **"OpenTraj: Assessing Prediction Complexity in Human Trajectories Datasets."** In Proceedings of the 15th Asian Conference on Computer Vision.
- **Amirian, J.**, Van Toll, W., Hayet, J. B., Pettré, J. (2019, July). **"Data-Driven Crowd Simulation with Generative Adversarial Networks."** In Proceedings of the 32nd International Conference on Computer Animation and Social Agents (pp. 7-10).
- **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 Workshops, 2019.
- (TDP) **Amiryan, J.**, Raeessi, S., Payandeh, P., Nadimi, B., Nouri, N., Kamali, M. R., Nazemi, E., **"CYRUS 2016 Team Description Paper,"** 2016.
- **Amiryan, J.**, Jamzad, M., **"Adaptive motion planning with artificial potential fields using a prior path,"** Robotics and Mechatronics (ICROM), 2015 3rd RSI International Conference on, 2015.
- (MSc Thesis) **Amiryan, J.**, **"Dynamic Motion Planning and Obstacle Avoidance Simulation for Autonomous Robot-car in Webots,"** MSc Thesis, Department of Computer Engineering, Sharif University of Technology, August 2014.
- Mazloum, J., Jalali, A., **Amiryan, J.**, **"A novel bidirectional neural network for face recognition,"** Computer and Knowledge Engineering (ICCKE), 2012 2nd International eConference on. IEEE, 2012.

Skills

- **Programming Languages:** Python, C/C++, Matlab.
- **Deep Learning Frameworks:** Pytorch, Keras (TensorFlow)
- **Version Control:** Git.
- **AI and Robotics Tools:** OpenCV, ROS.
- **Software Design:** OOD; Concurrent and Multithread; Modular Programming.

- **Graphic Tools:** Adobe Photoshop, Adobe Premiere; 3ds Max.

Activities

- Former member of technical committee (TC) of Small Size League at Robocup Iran Open. Link.
- Interested in football and fan of Perspolis club. Going to stadium and encouraging my favorite team is one of my most exciting entertainments.
- Interested in playing soccer, hiking, body-building.

References

- **Dr. Julien Pettre**
  Research Scientist at Rainbow, INRIA-Rennes, Brittany, France
  Email: julien.pettre@inria.fr

- **Dr. Jean-Bernard Hayet**
  Researcher at CIMAT, Department of Computer Science., Guanajuato, Mexico
  Email: jbhayet@cimat.mx

- **Dr. Mansour Jamzad**
  Department of Computer Engineering, Sharif University of Technology,Tehran, Iran
  Email: jamzad@sharif.edu

- **Dr. Eslam Nazemi**
  Department of Electrical and Computer Engineering, Shahid Beheshti University, Tehran , Iran
  Email: nazemi@sbu.ac.ir