

# GARRICK BRAZIL

Senior Scientist | ROC AI

① garrickbrazil.com    ✉ brazgardian@gmail.com

## EDUCATION

---

Michigan State University - East Lansing, MI

- PhD Computer Science, 2016 – 2021, Adviser: Dr. Xiaoming Liu
- Research focus: Computer Vision, Machine Learning, Object Detection (2D/3D)

Kettering University - Flint, MI

- Bachelors in Computer Science, 2011 – 2015, Adviser: Dr. Jim Huggins
- Concentrations in Computer Graphics, Data Security

## PUBLICATIONS

---

- Omni3D: A Large Benchmark and Model for 3D Object Detection in the Wild [arXiv 2207.10660](#)  
Computer Vision and Pattern Recognition (CVPR 2023), Vancouver, Canada, Jun. 2023  
Authors: **Garrick Brazil**, Abhinav Kumar, Julian Straub, Nikhila Ravi, Justin Johnson, Georgia Gkioxari
- Camera Self-Calibration Using Human Faces [IEEE 10042701](#)  
Conference on Automatic Face and Gesture Recognition (FG), Kailua Kona, Hawaii, Jan. 2023  
Authors: Masa Hu, **Garrick Brazil**, Nanxiang Li, Liu Ren, Xiaoming Liu
- DEVIANT: Depth EquiVariant NeTwork for Monocular 3D Object Detection [arXiv 2207.10758](#)  
European Conference on Computer Vision (ECCV 2022), Tel Aviv, Israel, Oct. 2022  
Authors: Abhinav Kumar, **Garrick Brazil**, Enrique Corona, Armin Parchami, Xiaoming Liu
- GrooMeD-NMS: Grouped Mathematically Differentiable NMS for Monocular 3D Object Detection [arXiv 2103.17202](#)  
Computer Vision and Pattern Recognition (CVPR 2021), Virtual, Jun. 2020  
Authors: Abhinav Kumar, **Garrick Brazil**, Xiaoming Liu
- Kinematic 3D Object Detection in Monocular Video [arXiv 2007.09548](#)  
European Conference on Computer Vision (ECCV 2020), Virtual, Aug. 2020  
Authors: **Garrick Brazil**, Gerard Pons-Moll, Xiaoming Liu, Bernt Schiele
- The Edge of Depth: Explicit Constraints between Segmentation and Depth [arXiv 2004.00171](#)  
Computer Vision and Pattern Recognition (CVPR 2020), Seattle, Washington, Jun. 2020  
Authors: Shengjie Zhu, **Garrick Brazil**, Xiaoming Liu
- M3D-RPN: Monocular 3D Region Proposal Network for Object Detection [arXiv 1907.06038](#)  
International Conference on Computer Vision (ICCV 2019), Seoul, Korea, Oct. 2019 (**Oral, 4.3%**)  
Authors: **Garrick Brazil**, Xiaoming Liu
- Pedestrian Detection with Autoregressive Network Phases [arXiv 1812.00440](#)  
Computer Vision and Pattern Recognition (CVPR 2019), Long Beach, California, Jun. 2019  
Authors: **Garrick Brazil**, Xiaoming Liu
- Recurrent Flow-Guided Semantic Forecasting [arXiv 1809.08318](#)  
Winter Conference on Application of Computer Vision (WACV 2019), Waikoloa, Hawaii, Jan. 2019  
Authors: Adam M. Terwilliger, **Garrick Brazil**, Xiaoming Liu
- Illuminating Pedestrians via Simultaneous Detection & Segmentation [arXiv 1706.08564](#)  
International Conference on Computer Vision (ICCV 2017), Venice, Italy, Oct. 2017  
Authors: **Garrick Brazil**, Xi Yin, Xiaoming Liu

## WORK EXPERIENCE

---

- Senior Scientist, Rank One Computing. Grand Rapids, Michigan **Jul 2023 – Present**
  - Scene understanding, Object detection (2D/3D)
- Postdoc Researcher, FAIR in Meta AI. Menlo Park, California **Jun 2021 – June 2023**
  - Monocular 3D object detection, Omni3D
  - Mentors: Georgia Gkioxari, Justin Johnson
- Research Intern, FAIR in Facebook AI. Menlo Park, California **May 2020 – Nov 2020**
  - Self-supervised monocular 3D reconstruction
  - Mentors: Georgia Gkioxari, Justin Johnson
- Visiting Researcher, Max Planck Institute (MPI). Saarbrücken, Germany **Jun 2019 – Aug 2019**
  - Video-based monocular 3D object detection
  - Mentors: Bernt Schiele, Gerard Pons-Moll
- Research Intern, Deepcam LLC. Lansing, Michigan **May 2018 – Aug 2018**
  - Efficient pedestrian detection on low-end hardware
- Software Engineer, PIXO Group. Southfield, Michigan **Oct 2015 – Apr 2016**
  - Mobile and web development, Virtual reality
- Software Intern, Bosch Car Multimedia. Novi, Michigan **Apr 2013 – Jun 2015**
  - Infotainment testing and debugging, OpenCV systems

## SKILLS

---

- Python, PyTorch, Pytorch3D, Computer Vision, Deep Learning, MATLAB, Caffe, OpenCV, C++, C, Java, Javascript, HTML5, Unity, Android, Cordova, LabVIEW

## TALKS

---

- “Discovering Objects in 2D and 3D”. Facebook, Virtual **Mar 2021**
- “Detecting Objects in Urban Scenes using a Monocular Image”. MPI, Germany **Jul 2019**
- “Detecting Objects in Urban Scenes using a Monocular Image”. Notre Dame, USA **Oct 2019**

## SERVICES

---

- Reviewer: CVPR, ICCV, ECCV, NeurIPS, PAMI **2017 – Present**
- Web chair: WACV **2018 – 2019**

## AWARDS

---

- Michigan State University - Engineering Research Symposium, Honorable Mention, 2017
- Michigan State University - University Enrichment Fellowship, 2016
- MITRE Cyber Challenge Team Leader - 4<sup>th</sup> Place (of 96 teams), 2015
- Kettering University - Upsilon Pi Epsilon, 2014
- Kettering University - Kettering "Impact" Contest Winner, 2014

## OPEN SOURCE

---

- Omni3D (python, pytorch, pytorch3d) - <https://github.com/facebookresearch/omni3d>
- Kinematic3d (python, pytorch) - <https://github.com/garrickbrazil/kinematic3d>
- M3D-RPN (python, pytorch) - <https://github.com/garrickbrazil/M3D-RPN>
- AR-Ped (MATLAB, caffe) - <https://github.com/garrickbrazil/AR-Ped>
- SDS-RCNN (MATLAB, caffe) - <https://github.com/garrickbrazil/SDS-RCNN>
- kumobile (html, css, javascript, cordova) - <https://github.com/garrickbrazil/kumobile>
- Lightsabers (C++) - <https://github.com/garrickbrazil/Lightsabers>
- Mental Mystics (C++) - [https://github.com/garrickbrazil/Mental\\_Mystics](https://github.com/garrickbrazil/Mental_Mystics)