GARRICK BRAZIL

Senior Scientist | ROC.ai

ⓘ 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

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

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

SKILLS AND LANGUAGES

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

OPEN SOURCE CONTRIBUTIONS

- Omni3D (python, pytorch, pytorch3d) - https://github.com/facebookresearch/omni3d
- DEVIANT (co-author, python, pytorch) - https://github.com/abhi1kumar/DEVIANT
- GrooMeD-NMS (co-author, python, pytorch) - https://github.com/abhi1kumar/groomed_nms
- Kinematic3d (python, pytorch) - https://github.com/garrickbrazil/kinematic3d
- EdgeDepth (co-author, python, pytorch) - https://github.com/TWJianNuo/EdgeDepth-Release
- 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