

GARRICK BRAZIL

Postdoc Researcher

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Education

Michigan State University - East Lansing, MI

- PhD Computer Science, Fall 2016 – May 2021, 3.95/4.0 GPA, Adviser: Dr. Xiaoming Liu
- Research focus: Computer Vision, Deep Learning, Object Detection (2D/3D), Self-supervised

Kettering University - Flint, MI

- Bachelors of Science in Computer Science, 2015, 3.85/4.0 GPA, Adviser: Dr. Jim Huggins
- Dual concentrations in Computer Graphics, Data Security

Publications

Omni3D: A Large Benchmark and Model for 3D Object Detection in the Wild

[arXiv 2207.10660](#)

arXiv preprint, July 2022

Authors: **Garrick Brazil**, Julian Straub, Nikhila Ravi, Justin Johnson, Georgia Gkioxari

DEVIANT: Depth EquiVariant NeTwork for Monocular 3D Object Detection

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 & Experiences

- Fundamental Artificial Intelligence Research (FAIR) at Meta AI. Menlo Park, California **June 2021 – Present**
 - Postdoc researcher: emphasis on the relationship between 2D and 3D weak / self-supervised learning.
- Facebook Artificial Intelligence Research (FAIR). Menlo Park, California **May 2020 – Nov 2020**
 - Research Intern: focus on learning 3D structures from 2D. Mentored by G. Gkioxari, J. Johnson, and N. Ravi
- Max Planck Institute (MPI) for Informatics. Saarbrücken, Germany **Jun 2019 – Aug 2019**
 - Visiting Researcher: kinematic monocular 3D detection. Mentored by Gerard Pons-Moll and Bernt Schiele
- Deepcam LLC. Lansing, Michigan **May 2018 – Aug 2018**
 - Research Intern: development for efficient object detection involving binary/quantized neural networks.
- PIXO Group. Southfield, Michigan **Oct 2015 – Apr 2016**
 - Software Engineer: interactive digital applications for mobile, web apps, animation, and virtual reality.
- Bosch Car Multimedia. Novi, Michigan **Apr 2013 – Jun 2015**
 - Software Intern: testing, automation, a speech driven mobile app., and OpenCV multi-camera system.

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 Saarbrücken, Germany **Jul 2019**
- “Detecting Objects in Urban Scenes using a Monocular Image”. Notre Dame, Indiana, USA **Oct 2019**

Services

- Web chair: WACV18, WACV19
- Reviewer: PAMI, CVPR, ICCV, ECCV, NeurIPS

Awards

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

Open Source Software

- 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
- KU-Scheduler (Java) - <https://github.com/garrickbrazil/KU-Scheduler>