JOHN GIBSON

@ gibbyje2@gmail.com +1 216-973-1312 New York, NY github.com/jgibson2

EXPERIENCE

Senior Computer Vision Engineer / AR Platform Engineering Intern

Niantic, Inc.

Jan. 2021 – Present / 2019, 2020 New York, NY

- Contributed to research on state-of-the-art depth estimation networks (SimpleRecon), which is cited 20 times and has >1K stars on GitHub. Retrained network on proprietary dataset of 10,000 scenes and optimized it for on-line inference, achieving an additional 40% speedup. Integrated trained network into production computer vision pipeline for 3D mesh creation, generating meshes for >100K real-world locations from user-sourced data.
- Implemented, trained, and deployed efficient neural networks for regressing data quality and video anonymization, saving the company approximately $2 million per year.
- Developed high-performance, highly parallelized systems in C++ using the actor model for low-latency on-line, distributed SLAM algorithms. Worked with high-speed message passing both in-process and over TCP connections using ZeroMQ.
- Designed and implemented prototype location and visual data query system using finetuned CLIP and Detectron2, enabling discovery of interesting locations from user-collected data using plain text descriptions and object categories.

Teaching Assistant / Student Researcher

Washington University in St. Louis

Jan 2018 – Jan 2021 St. Louis, MO

- Worked as head teaching assistant for Analysis of Algorithms, Algorithms for Biosequence Comparison, and Bayesian Optimization classes. Aided students in designing and building projects as a teaching assistant for Intro to Engineering Design.
- Used nonlinear optimization and genetic algorithms for estimating the parameters of a thermodynamic model of gene expression in transcription-factor deletion yeast strains.

Software Engineering Intern

CiBO Technologies

May 2018 – Aug 2018 Boston, MA

- Developed cloud-based system for standardized bioinformatics analysis of sequencing data, including automated downloading of sequencing data, scheduling of new analysis jobs from electronic lab notebook data, fault-tolerant running of jobs in Kubernetes with retries, and web-based tracking of job status.
- Maintained and developed genetic information retrieval service for large genomic datasets and organism data for bespoke research needs.

PROJECTS

- Implemented Instant Neural Graphics Primitives in PyTorch Lightning, SimCLR and NNCLR for image and video contrastive learning, image-to-mesh style transfer using differentiable rendering, and denoising diffusion models for face generation.
- Created Bayesian optimization toolkits in Javascript, JAX, and Julia with multiple kernels and acquisition functions, Bayesian single nucleotide polymorphism detector using 1000 Genomes prior mutation data, and web-based comparison between methods for predicting Bayesian uncertainty in neural network posteriors.
- Implemented AR protein viewer using 8th Wall AR engine with three.js and web-based procedural generation demo using Rust compiled into WASM.
- Led implementation team for an SMS-based platform to help hospitals handle the COVID patient influx by remotely connecting users to healthcare providers for triage. This project was featured by the Local Hack Day: Share, HackAtHome, and COVID-19 Global Hackathon 1.0 competitions.
- And more! See my GitHub for more projects.

ABOUT ME

Hi! I'm a software engineer who is passionate about building products and research projects that make the world a better place. My interests include computer vision, bioinformatics, deep learning, Bayesian methods, augmented reality, 3D reconstruction, genetics, and medical imaging. Outside of work, I am an avid photographer, hiker, coffee and tea enthusiast, word game player, and lover of all things wacky and weird.

EDUCATION

B.S. + M.S. Computer Science

Washington University in St. Louis

Aug. 2016 – Jan. 2021

- Graduate Certificate in Data Mining & Machine Learning
- Minor in Bioinformatics

TECHNOLOGIES

Python, C++, Go, Javascript, Scala, Rust, Java

PyTorch, Torchvision, Numpy, JAX, scikit-learn, OpenCV, Eigen

Docker, Kubernetes, Git, Linux, SQL, Google Cloud Platform, Amazon Web Services, CMake, Terraform, Helm, Flask

PUBLICATIONS

SimpleRecon: 3D Reconstruction Without 3D Convolutions

Mohamed Sayed, John Gibson, Jaime Watson, Victor Adrian Prisacariu, Michael Firman, Clèment Godard

ECCV, 2022

Prevalence and genetic variants of G6PD deficiency among two Malagasy populations living in Plasmodium vivax-endemic areas

Rosalind E Howes, Ernest R Chan, Tovonahary Angelo Rakotomanga, Seth Schulte, John Gibson, Melinda Zikursh, Thierry Franchard, Brune Ramiranirina, Arsène Ratsimbasoa, Peter A Zimmerman

Malaria Journal, 2017