Bhushan B. Sonawane

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Education

- **SUNY StonyBrook University** — StonyBrook, NY
  Master of Science in Computer Science; GPA: 3.67/4 — *May 2019*
  - **Thesis**: Face editing using GANs advised by Professor Dimitris Samaras; Member of Computer Vision Lab
  - **Courses**: Machine Learning, Convex Optimization, Prob & Stats, Artificial Intelligence, Analysis of Algorithm
- **Vishwakarma Institute of Technology** — Pune, India
  Bachelor of Technology in Computer Engineering; GPA: 9.27/10 — *May 2015*

Experience

- **SUNY Research Foundation** — StonyBrook, NY
  Senior Research Aide — *Jan 2018 - Current*
  - **Image parser tool**: Tool for converting high resolution proprietary bio-medical images into tiff format. [C]
- **Nvidia** — Pune, India
  System Software Engineer, Compiler — *Jun 2015 - Jul 2017*
  - **Optimizing compiler**: Worked on Nvidia Tegra graphics and CUDA compute compiler; Improved peephole optimizations; OpenGL/DX driver interfaces; Optimization for compile time improvements; Developed Profiling infrastructure; Worked on Tegra(Android) compiler issues; Worked on Coverity, GCov; [C/C++]
  - **Assembler**: Implemented DWARF 2.0 compliant debug frame support for CUDA 9.0. [C]
- **Vishwakarma Institute of Technology** — Pune, India
  Visiting Instructor — *Jan 2017 - May 2017*
  - **Instructed**: Third year undergraduate course 'Problem Solving and Programming'
- **Nvidia** — Pune, India
  Intern, Compiler — *Jun 2014 - Apr 2015*
  - **PBQP based Register Allocator**: Implemented Partitioned Boolean Quadratic Problem based register allocator for Nvidia compiler; 98% of existing tests improved (graphics and compute tests); [C++]

Open-Source

- **PyTorch**: Implementing YellowFin optimizer [WIP] [Python]
- **Logical Vision**: Polygon Detection; Implemented KNN using ml-pack. [Prolog, C++, Python, OpenCV]

Projects

- **Lighting estimation for faces**: Lighting estimation is important for face editing tasks; Existing light estimation from single face are inefficient; We are trying use Neural Networks for improving light estimation from single image; [WIP]
- **Co-Operative GANs**: New method for training Generative Adversarial Netowrks; Multiple Generators are trained and the end of every iteration, every generator copies best performing Generator; This helps overcoming mode collapsing and faster convergence; Validated on MINST, CelebA datasets. [Python, PyTorch]
- **Generating fake Super-Heroes**: Training Deep Convolutional Generative Adversarial Network with lots of superhero images in order to generate fake ones; Currently collecting data; [WIP] [Python, PyTorch]
- **Deep Learning for Computer Vision**: Implemented CNNs for CIFAR-10 object recognition; Implemented Auencoders and GANs for image generation; [Python, PyTorch]
- **Machine Learning Algorithms**: Implemented Ridge Regression, Lasso Solver, Support Vector Machine using Stochastic Gradient Descent and Quadratic Programming. [Python, Matlab]
- **SmartOFF - Managing power supply of appliances for energy conservation**: Home appliances consumes significant power in stand by mode; Internet of Things and Machine Learning solution; LSTM model to understand and predict appliances' usage pattern and control power supply accordingly. [Python, Scikit-learn, Tensorflow, Keras]
- **ATARGS - Patient tracking and reporting**: Automatic appointment scheduling and managing; Interface through text and web-app(Grails); Under collaboration of SUNY Binghamton and VIT; Deployed at Poona Hopital. [Groovy]
- **GroupPlay**: Synchronize all devices for audio playback over wifi. [Android, Java]

Skills

- C++, C, Python, Java, Groovy, Matlab, Prolog, PyTorch, Tensorflow, Keras, LLVM, Django, Grails, Android