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; **Advisor**: Prof. Dimitris Samaras; 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*
  - **Converting images into tiled TIFF format**: Developing tool for converting high resolution proprietary bio-medical images into tiled TIFF images; Working with StonyBrook Bio-Medical department [C]
- **Nvidia** — Pune, India
  System Software Engineer, Compiler — *Jun 2015 - Jul 2017*
  - **Compile time and memory infrastructure**: Collaborated with OpenGL driver and GLSL Front-end compiler team for implementing Compile time and Memory usage profiling infrastructure [C++]
  - **Early copy propagation**: Phase ordering of copy propagation; Reduced number of instructions processed by optimizer; Improved compile time from few hours to few minutes for specialized shaders; [C++]
  - **Assembler**: Implemented DWARF 2.0 compliant debug frame support for CUDA 9.0; Implemented Vendor specific extensions to support DWARF 3.0 features in DWARF 2.0; [C]
  - **Misc**: Implemented/Enhanced various peephole optimizations, interfaces and heuristics. [C/C++/Python]
- **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++]
    Slides: http://slides.com/bhushansonawane/deck/

Select Projects

- **Face Editing using Generative Adversarial Networks**: Applying GANs for facial geometry construction and editing facial attributes. [Python, PyTorch]
- **Object Recognition using Convolution Neural Networks**: Implementing ResNet and Wide-Residual Network for object recognition on CIFAR-10 dataset. [Python, PyTorch]
- **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]
- **VIT-OS**: Undergraduate course project; Implemented Operating System under hardware simulator- interrupt, timer, channels, reader, printer, auxiliary storage, user storage, multiprogramming and slave mode paging system. [Java, C]
- **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]

Programming Skills

- **Languages**: C++, C, Python, Java, Groovy, Prolog
- **Technologies**: PyTorch, Tensorflow, Scikit-learn, Keras, OpenCV, LLVM, Django, Grails, Android.