

BHUYASHI DEKA

☎ (608) 658-5211 | ✉ bdeka@wisc.edu | [in bhuyashi-deka](https://www.linkedin.com/in/bhuyashi-deka) | github.com/Bhuyashi

EDUCATION

University of Wisconsin - Madison Master of Science, Computer Science <i>Courses: Computer Vision, Computer Graphics, Artificial Intelligence</i>	Sept 2024 - May 2026 Madison, US
Indian Institute of Technology, Bombay Master & Bachelor of Technology, Electrical Engineering <i>Courses: Processor Design, Computer Architecture, Digital Signal Processing, Probability & Statistics</i>	Jul 2016 - Aug 2021 Mumbai, India

WORK EXPERIENCE

Samsung Semiconductor India Research <i>Hardware-Software Codesign: Computer Vision</i> <ul style="list-style-type: none">Developed a temporal denoising engine for weighted averaging of consecutive frames using wavelet transform for frame downscaling, neural engine-based weight map estimation, and bilinear interpolation for upscaling weight mapWorked on Dense Optical Flow engine to reduce image motion artefacts by estimating vector maps between two framesDeveloped a decision tree and deep learning model to replace the in-house SRAM memory area estimation tool, achieving 99.1% and 96.2% accuracy respectively, while improving runtime performance by nearly 100xDesigned and developed a novel architecture for Gamma Correction which is a recurring algorithm in the imaging pipelineBuilt an automation engine using Python and csh with a PyQt-designed GUI to streamline tool workflows, integrating tool setup, execution, and error reporting, which improved efficiency by 75% and reduced result review time by 90%Automated the performance and area estimation process for PPA analysis effectively reducing man hours by 50%Received the Spotlight Award three times in a span of two years for exceptional performance and contributions to the teamPromoted to Associate Staff Engineer position for showcasing strong technical skills and exemplary work	Jul 2021 - Aug 2024 Bangalore, India
<i>Power Management IC Design - Intern</i> <ul style="list-style-type: none">Designed behavioral model for Power Management IC modules like oscillators, dropout regulators, buck-boost convertersAutomated code generation using Perl; analyzed VerilogA, SystemVerilog, and schematic models, and created testbenches	May 2019 - Jul 2019
Intello Labs <i>Data Analytics - Intern</i> <ul style="list-style-type: none">Compiled a dataset from manually collected invasive sugar level measurements to fine-tune a non-invasive medical deviceAnalyzed the data collected and fit a polynomial regression curve to the device parameters to improve its prediction	Dec 2018 - Jan 2019 Mumbai, India

RESEARCH EXPERIENCE

Spatio-Temporal Noise Reduction Algorithm for Low-end devices <ul style="list-style-type: none">Developed a light-weight spatio-temporal denoising algorithm for low-end Samsung phones for the price-sensitive sectorEnhanced the non-local means algorithm by using noise estimation, adaptive smoothing, and total variation minimizationPresented the work at the Samsung Semiconductor India RnD TechCon 2023 and was awarded the best paper	Samsung Semiconductor
Efficient architecture for 3D CNN Acceleration <ul style="list-style-type: none">Experimented with hardware architectures to efficiently run convolutional neural networks, improving resource utilizationImplemented depthwise convolution, optimized looping and tiling order to reduce hardware and align it to data flow	Master's Thesis, IIT Bombay

PROJECTS

Surveillance video people detection and counting <ul style="list-style-type: none">Developed a people-tracking system using background subtraction, image cleaning, and bounding boxes for object detectionTrained an SVM with Aggregate Channel Features and optimized sliding window stride to reduce over-counting	IIT Bombay
Comparative Analysis of Pathfinding Algorithms <ul style="list-style-type: none">Developed a maze generation system using depth-first search to simulate real-time pathfinding with visual representationImplemented multiple algorithms like A*, DFS, BFS in Python to compare their efficiency on dynamically generated mazes	IIT Bombay

SKILLS

Languages: Python, C, C++, SystemVerilog, VHDL, Assembly, SQL, JavaScript, MATLAB
Libraries & Tools: PyTorch, TensorFlow, OpenCV, Numpy, Scikit, Pandas, Matplotlib, OpenGL, git, Linux
Boards: DE0-Nano FPGA board, Raspberry Pi 3, Arduino, Tiva-C