

**Rajarshi Roy**  
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**EDUCATION:**

**Stanford University**

Jan 2014 - Present

*Master of Science in Electrical Engineering*

- Software and Hardware Systems Depth
- Honors Cooperative Program sponsored by NVIDIA Corp.
- Coursework:

*CS: Computer Graphics: Image Synthesis Techniques, Interactive Computer Graphics, Introduction to Computer Graphics and Imaging, Computer Vision, Artificial Intelligence: Principles and Techniques, Machine Learning, Convolutional Neural Networks, Program Analysis and Optimization.*

*EE: Computer Systems Architecture, Convex Optimization I, Introduction to Linear Dynamical Systems, Introduction to VLSI Systems.*

**University of Illinois at Urbana-Champaign**

Aug 2009 - Dec 2012

*Bachelor of Science in Electrical Engineering with Minor in Computer Science (GPA: 3.88/4.00)*

- Graduation with High Honors
- Henry O. Koehler Memorial Scholarship recipient.
- Coursework:

*CS: Computer Architecture (Graduate Level), Computer Organization and Design, Computer Systems Engineering, Data structures and Algorithms, Discrete Structures, Data Visualization, Embedded Systems.*

*EE: Advanced Digital Projects Lab, Digital Systems Lab, Embedded DSP Lab, Analog and Digital Signal Processing, Electronic Circuits, EM Fields and Waves, Solid-State Devices.*

**WORK EXPERIENCE:**

**NVIDIA Corp. (GPU ASIC Division)**

Jan 2013 - Present

*Senior ASIC Engineer*

- Responsible for driving development and verification of the latest GPU core micro-architectures used throughout NVIDIA's product line.
- Responsibilities involve understanding the functionality of new architectural enhancements, implementing them in software models of other units interacting with the GPU core for simulation, solving unforeseen issues in the GPU core micro-architecture stemming from these enhancements and developing an ISA level program generator that is used for evaluating functionality, performance and power consumption of next-generation architectures.
- Gaining experience with C++, Verilog and a deep understanding of the GPU realtime graphics/raytracing/parallel computation/deep learning pipelines, GPU core architecture, GPU program execution model and GPU ISA.

**University of Illinois at Urbana-Champaign**

Aug 2010 - Dec 2012

*Teaching Assistant*

- ECE 445 (Senior Design), ECE 342 (Electronic Circuits), ECE 210 (Analog Signal Processing)
- Mentored four groups of students who won course awards on their projects as teaching assistant for the ECE445 (Senior Design) course.

**Siemens Medical Solutions Inc. (Molecular Imaging Division)**

Jan 2011 - Aug 2011

*Hardware Engineering Intern*

- Designed and tested safety system prototypes (ultrasonic, capacitive, 3D vision) for SPECT scan machines.
- Gained experience with Microsoft Kinect 3D vision libraries, ultrasonic and capacitive sensor technologies, Atmel microcontrollers, embedded programming, PCB design, EMI compliance testing, hardware validation documentation and contacting sensor manufacturers.

**PROJECTS:**

**Rays of Light through Stained Glass Windows (Stanford CS148 Summer 2016 Best Visuals Project Award):**

[\(https://mdzahidh.github.io/cs148/best/\)](https://mdzahidh.github.io/cs148/best/)

- Created a real-time OpenGL demo of a church scene with stained glass windows with custom shaders for refractions, volumetric scattering and texture mapping.

**Raytraced Honeycomb Rendering (Stanford CS348b Summer 2015 Honorable Mention Award for Best Modeled Project):**

- Modeled a honeycomb scene with custom physically-based raytracing code for subsurface scattering and volumetric scattering.

**Portable Braille e-Book Reader (UIUC ECE445 Spring 2012 Best Engineered Project Award):**

<https://courses.engr.illinois.edu/ece445/hall-of-fame.asp>

- Developed an assistive device for blind users that uses two Braille cells constructed using micro-servos to display SMS/e-books.
- Designed circuits for capacitive touch interface, servo control, power management, SD card and Bluetooth interface.

**PC ambient backlighting system (Featured on lifehacker.com):**

<http://lifehacker.com/5838840>

- Constructed an ambient backlighting system to project the average color of the display on a computer monitor real-time onto backlighting LED strips using only one microcontroller, one IC chip and a LED strip.

**Kinect as PC Gaming Interface (Featured on hackaday.com):**

<http://hackaday.com/2011/07/06/driving-game-steering-wheel-controller-without-the-wheel/>

- Developed a smooth gesture-based interface for racing and first person shooter PC games using the Microsoft Kinect depth sensor.