

# Siddharth Narayanaswamy

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<http://iffsid.com>

## Skills

extensive computer-vision, signals and systems, and robotics background, strong experience with algorithms and compiler design, visual perception, machine learning, cognitive science, haptics, automatic-differentiation, stochastic and non-deterministic programming languages, functional, logic, and constraint programming

## Languages

C/C++, Scheme, Lisp, MATLAB, Java, Python, Prolog, VHDL, Verilog  
DSP(AD Blackfin) assembly, microcontroller assembly, x86 assembly  
native English, Tamil, and Hindi

## Education

### PhD student, Artificial Intelligence

2008 – present

Purdue University, Jeffrey Mark Siskind

cognitive robotics, grounding language in vision and robotic manipulation  
high-level reasoning to solve inverse problems in vision and motor control  
segmentation and tracking of objects in video with semantic priors  
nondeterministic programming for solving constraint-satisfaction problems  
stochastic modeling via probabilistic programming  
<http://iffsid.com/research>

### Bachelor of Engineering - Electronics and Communication

2004 – 2008

Anna University, India

Image Processing, Speech Processing, Computer Vision  
Communication Systems, Embedded Systems (Robotics)

## Publications / Posters

### A Visual Language Model for Estimating Object Pose and Structure in a Generative Visual Domain

May 2011

Siddharth Narayanaswamy, Andrei Barbu, and Jeffrey Mark Siskind

Paper

*Proceedings of 2011 IEEE International Conference on Robotics and Automation(ICRA)*

<http://iffsid.com/icra2011>

### Learning Physically-Instantiated Game Play Through Visual Observation

May 2010

Andrei Barbu, Siddharth Narayanaswamy, and Jeffrey Mark Siskind

Paper

*Proceedings of 2010 IEEE International Conference on Robotics and Automation(ICRA)*

<http://iffsid.com/icra2010>

### Design of a Do-It-Yourself VR Based Laparoscopic Simulator

Jan. 2009

Siddharth.N, Manivannan.M, Suresh Devasahayam, and George Mathew

Poster

*Medicine Meets Virtual Reality (MMVR17)*

## Employment History

### Research Assistant

Aug. 2008 – present

Jeffrey Mark Siskind

Purdue University, USA

designed and built custom robots for general manipulation tasks  
solved vision and robotic manipulation problems using AD-based optimization  
implemented closed-loop visual-servoing mechanism to drive motor control  
implemented CSP-based algorithms to evaluate physical stability of structures derived from visual input

**Part-Time Instructor**

The Princeton Review(Manya Education Pvt.Ltd.)

handled the GRE and GMAT standardized exams  
taught 250 students over a 10 month period

*Oct. 2007 – Aug. 2008*

Chennai, India

**Undergraduate Research Intern**

Doors and Gates Pvt.Ltd.

implemented a range of IR control mechanisms for controller operations  
tested and used implemented mechanisms successfully in robots during competitions  
designed hybrid control mechanism for non-line-of-sight applications that included switching between multiple modes of operation autonomously

*May 2007 – Sept. 2007*

Chennai, India