

DIPANJAN SENGUPTA

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RESEARCH INTERESTS:

Operating Systems, Computer Architecture, Virtualization, High Performance Computing.

EDUCATION:

Georgia Institute of Technology, Atlanta, GA

Expected May 2016

Ph.D., Computer Science

Advisor: Prof. Karsten Schwan

Indian Institute of Technology (IIT) Kharagpur, India

June 2008

B.Tech in Computer Science and Engineering

RESEARCH EXPERIENCE:

Georgia Institute of Technology, Atlanta

Aug 2011 - Present

Graduate Research Assistant, CERCS

Task scheduling in clusters with accelerator based heterogeneous multi-core nodes.

Indian Institute of Technology (IIT) Kharagpur

Jan 2007 - May 2008

B.Tech Thesis

Design and implementation of a Secure File System (SFS) that pushes encryption services inside the Linux kernel, mounting it between the Virtual File System (VFS) layer and underlying filesystem.

NucleoDyne Systems Inc. Cupertino

May 2007 – July 2007

Summer Intern

Development of embedded Linux kernel and configuring JFFS2 filesystem on top of custom designed Biophysical Oceanographic Sensor Array (BIOSA) embedded Board, Monterey Bay Aquarium Research Institute (MBARI).

WORK EXPERIENCE:

Adobe Systems, India

Dec 2008 - June 2011

Senior Software Developer in Adobe Photoshop® Elements team

- Designed and implemented *Photomerge Style transfer* feature, that applies the tone and texture of one image(source) to another image(destination), in Adobe Photoshop® Element(PSE) 9.
- Designed and implemented a resolution based **automatic universal scaling algorithm** with lower bound of scaling factor proportional to the minimum application font size, in PSE 8.

Veveo, Inc.

July 2008 - Nov 2011

Software Developer

- Designed and implemented the *Record and Upload* feature in **Vtap** on symbian S60 3rd edition smartphones.
- Implemented a native client for wikipedia on Symbian S60 5th edition smartphones.

SEMESTER PROJECTS:

- Implemented *Adaptive per-Thread Least-Attained-Service(ATLAS)* and *Thread Cluster (TCM)* memory scheduling algorithms on macsim simulator, as a term project in the High-

- Performance Computer Architectures course [Fall 2011].
- Designed and implemented trace driven multiscalar, pipelined, hyper-threaded processor and memory system simulator as a term project in High-Performance Computer Architectures course [Fall 2011].
 - Implemented a **LFSR based pattern generator to be designed for hard-to-detect faults using deterministic test patterns** as a term project in the Testing and Verification of Circuits course [Autumn 2007].
 - Implemented a distributed **framework to monitor data over a large network and detect common content in packet level traffic** as a term project in the Database Management Systems course [Spring 2007].
 - Implemented **FTP and SMTP Servers** on Linux platform as a term project in the Computer Networks course [Spring 2007].
 - Implemented a **memory allocation library** as an experiment in the Operating Systems Lab [Autumn 2006].
 - Implemented a **shell on Linux** as an experiment in the Operating Systems Lab [Autumn 2006].
 - Implemented a **compiler** (upto intermediate code generation level) for **“Sub C” language, a subset of C language** a term project in Compiler Lab [Autumn 2006].
 - Designed a **4-bit microprogram controlled CPU** using IC chips, capable of performing elementary arithmetic/logic operations as an experiment in the Computer Organization and Architecture course [Spring 2006].
 - Designed a **prime number-checker** hardware circuit as an experiment in the Computer Organization and Architecture Lab [Spring 2006].
 - Designed a **Traffic Light Controller** using an **8086 microprocessor** chip as a term project in Principles of Microprocessors [Spring 2006].
 - Implemented an **Interpreter** for toy language as a semi-term project for the Algorithm Lab [Autumn 2005].

ACADEMIC HONORS:

- Secured an **All-India Rank (AIR) of 45** in the prestigious **IIT JEE examination 2004** among .15 million students all over India in 2004.
- Received the **Gora Lal Scholarship** offered by Mr. B.K Singal for securing **AIR 45** and **2th** position in IIT Kharagpur and **1st** position in the department of Computer Science and Engineering, in terms of AIR [2004].
- Received **Adobe Spot Bravo Award** for the design and implementation of an **algorithm to automatically scale various UI elements based on system resolution** in Photoshop Elements 8 [Sept 2009].
- The implementation of **Style Transfer of Images** got accepted in **Adobe MAX Conference 2010**.

SOFTWARE/PROGRAMMING SKILLS:

- Software Platforms: Linux, Solaris, Windows, Symbian
- Hardware Platforms: 8085, 80x86/x86 64, NVIDIA GPGPU, JTAG debugger.
- Languages: C, C++, Shell scripting, Python
- Libraries: POSIX IPC, NVIDIA CUDA, BSD Sockets
- Tools: Visual Studio, Xcode, Latex, Lex, Yacc.

RELEVANT COURSES:

- **Graduate:** High-Performance Computer Architectures, Advanced Operating Systems.
- **Undergraduate:** Operating System, Computer Organization and Architecture, Computer Networks, Design and Analysis of Algorithms, Principles of Microprocessors, Compiler

Design, Parallel Algorithms, Database Management Systems, Cryptography and Network Security, Applied Graph Theory, Testing and Verification of Circuits, Formal Languages and Automata Theory.

EXTRA-ACADEMIC ACTIVITIES:

- Won first prize in **Product Shoot out competition 2010** for Photoshop Elements 9
- Won the **Adobe Idol** singing competition in May 2009
- Won Gold medal in **Open IIT Hindi Dramatics**
- Was an active cadet of **Nation Cadet Corp (NCC)** in first and second year in IIT.