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SUMMARY

I am a PhD student at MIT graduating in January 2009. I study business requirements analysis in the computer science department (EECS-CSAIL). My research and experience are in figuring out what information is needed to build and analyze requirements, then getting that information out of different kinds of people, with different backgrounds, and different roles in the project or company. Finally, I organize that information in a comprehensible and maintainable structure. I have worked on several medium-scale software-intensive systems, including a working radiation therapy machine at Massachusetts General Hospital and an auditable voting system.

I have small business experience in a board game publishing company. I am in charge of coordinating 30+ external designers with marketing, production, and creative constraints. I also build the overall business process for handling large numbers of projects, to accommodate growth in the company as a whole. I manage a small team of developers, matching them to projects that fit their skills and interests and monitoring their work quality.

I am seeking a position as a requirements/business/system analyst where I can apply both my technical and people skills in making complex systems safer, more reliable, and cheaper to maintain.

EDUCATION

Graduate: Massachusetts Institute of Technology (MIT), Cambridge MA

PhD: Computer Science, Jan 2009

Masters: Computer Science, 2005

Minor: Engineering Systems Division & Aeronautics and Astronautics

GPA: 4.8 (max 5.0)

Research Interests: Dependability Analysis, Requirements Engineering, System Safety, Human-Computer Interaction, Maintainable Documentation, Medical Software, Relational Logic

Undergraduate: Haverford College, Haverford PA (class of 2002)

Bachelor of Science: double major in Computer Science and Mathematics

GPA: 3.84 (max 4.0), 3.92 within majors

WORK HISTORY

Research Assistant at MIT (Doctoral Research Program)

System Analysis and Requirements Engineering research under the supervision of Dr. Daniel Jackson, Dr. Ed Crawley, and Dr. Rob Miller. Involves writing grants and presenting research to peers & funding agencies. 6 peer reviewed publications. 2002-present.

Analyst for Burr Proton Therapy Center (BPTC) at Massachusetts General Hospital (MGH)

Part of doctoral research at MIT, funded by NSF ITR grant. Built end-to-end dependability cases for critical components of radiation therapy machine used for cancer treatment. Elicited and coordinated requirements from physicists, physicians, programmers, and managers. 2003-2007

Director of Game Development at Cambridge Games Factory

Part-owner of successful small publishing company. Coordinate 30+ independent designers with marketing, production, and creative constraints. Organize business processes in preparation for expansion and adaptation to new markets. 2007-present.

Teaching Assistant at MIT

Student tutoring, lesson planning, recitation presentations, student evaluation. System Engineering (6.033), Prof. Frans Kaashoek, Prof. Barbara Liskov, 2006. Lightweight Formal Methods (6.894), Prof. Daniel Jackson, 2005.

Research Assistant at Haverford College

Compiler analysis & optimization research under the supervision of Dr. Dave Wonnacott. 2 peer reviewed publications. 1999-2002.

Instructor at CTY: Center for Talented Youth (run by Johns Hopkins University)

Co-taught 3 Mathematics courses for gifted high school students. Lesson design, lecturing, discipline, student status reports, grading, advising student projects. Summer 1999/2002

SKILLS

Coordinating Communication & Eliciting Requirements

Experience collaborating and communicating with researchers, programmers, engineers, and managers to build unified system analyses & correctness arguments. Elicit and filter information from experts, summarize and organize goals & constraints, synthesize and present conclusions. Work with different types of people to get the information needed from them for building a requirement analysis, while maintaining their cooperation and trust.

System Analysis & Requirements Engineering

Experience analyzing safety and dependability of complex, software-intensive systems.

Technical Writing

Clear technical writing, presentations, and instruction gauged for different audiences. Experience developing online and live tutorials.

Tools, Techniques, & Programming Languages

Extensive experience with relational logic encoding & analysis, Adobe Creative Suite, Alloy modeling language, DabbleDb databases, LaTeX document preparation, MS Word document preparation, Omnigraffle diagram layout, Problem Frames system description. Familiar with Crawley & Koo's OPN, Doxygen code analysis, Eclipse, InDesign, Leveson's STAMP analysis, MS Access, MS Excel, OCL/UML, Word Perfect.

Write clear, documented, maintainable code. Experience analyzing and writing code in C, Java, HTML. Familiar with C++, Lisp, Scheme. Comfortable in Unix, Windows, and Mac environments.

PEER REVIEWED PUBLICATIONS

R. Seater, D. Jackson, R. Gheyi. *Requirement Progression in Problem Frames: Deriving Specifications from Requirements*. Requirements Engineering Journal (REJ'07). 2007.

R. Seater, D. Jackson. *Requirement Progression in Problem Frames Applied to a Proton Therapy System*. 14th IEEE International Requirements Engineering Conference (RE'06). 2006.

R. Seater, D. Jackson. *Problem Frame Transformations: Deriving Specifications from Requirements*. 2nd International Workshop on Applications and Advances in Problem Frames (IWAAPF'06), associated with the 28th International Conference on Software Engineering (ICSE'06). May 23, 2006.

M. Taghdiri, R. Seater, D. Jackson. *Lightweight Extraction of Syntactic Specifications*. 14th ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE'06). 2006.

G. Dennis, R. Seater, D. Rayside, D. Jackson. *Automating Commutativity Analysis at the Design Level*. International Symposium on Software Testing and Analysis (ISSTA '04). 2004.

I. Shlyakhter, R. Seater, D. Jackson, M. Sridharan, M. Taghdiri. *Debugging Overconstrained Declarative Models Using Unsatisfiable Cores*. Automated Software Engineering (ASE'03). 2003. Best paper award.

R. Seater, D. Wonnacott. *Efficient Manipulation of Disequalities During Dependence Analysis*. Languages and Compiler for Parallel Computation (LCPC '02). 2002.

R. Seater, D. Wonnacott. *Polynomial Time Array Dataflow Analysis*. Languages and Compilers for Parallel Computing (LCPC'01). 2001.

THESES

R. Seater. *Building Dependability Arguments for Software Intensive Systems*. MIT PhD Thesis. Jan 2009.

R. Seater. *Core Extraction and Non-Example Generation: Debugging and Understanding Logical Models*. MIT Masters Thesis. Nov 2004.

R. Seater. *Decomposition of Polygons into Minkowski Summands*. Bachelors Thesis in Mathematics from Haverford College. May 2002.

R. Seater. *Handling Disequalities During Dependence Analysis*. Bachelors Thesis in Computer Science from Haverford College. May 2001.

REFERENCES

Daniel Jackson, PhD

occupation: Professor of Computer Science at MIT

relation: Research Advisor in Software Design Group (SDG), Doctoral Thesis Committee

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(617) 258-8471

Edward Crawley, PhD

occupation: Professor of Aero-Astro & Engineering Systems Division at MIT

relation: Doctoral Thesis Committee

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(671) 253-7510

Robert Miller, PhD

occupation: Professor of Computer Science at MIT

relation: Doctoral Thesis Committee

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Edward Carter

occupation: Cambridge Games Factory, CGF Toolkit Consulting & Contracting

relation: Employer & Manager

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