

Christopher H. Tomkins-Tinch

CONTACT INFORMATION [details omitted for web] tomkins[first initial] [at] gmail [dot] [com] ✉

RESEARCH INTERESTS systems engineering, instrument design, microfluidics, high-performance computing, embedded systems, human-computer interaction, data visualization, large data sets, simulation and modeling, rapid prototyping techniques

EDUCATION **Rochester Institute of Technology (RIT)**, Rochester, New York
BS in Bioinformatics, Minor in Imaging Science (2012)

Dutchess Community College, Poughkeepsie, New York
Full-time college coursework in place of senior year of high school

PROFESSIONAL EXPERIENCE **Sandia National Laboratory**, Livermore, California
Contact: Gregory Sommer, Ph.D., gsommer@sandia.gov (925)294-2692

DHS Intern **June 2011 – August 2011**

Integrated system components for a synchronous high-speed video system, including mechanical hardware, optics, and control software. Designed a proprietary printed circuit board for camera triggering. Developed a rotational scanning epifluorescent microscope for biological and chemical assays, including motor control, electronic data acquisition, signal processing, data reduction, and user software. Prototyped a novel microfluidic device and method for fluorescent bioassays (disclosure restricted). Worked as a member of the *Biotechnology and Bioengineering Department*.

Oak Ridge National Laboratory, Oak Ridge, Tennessee

Contact: David Resseguie, resseguiedr@ornl.gov (865)241-5385

or Arjun Shankar, Ph.D. shankarm@ornl.gov (865) 574-2704

Student Research Assistant **October 2009 – May 2011**

ORNL Co-op Student **June 2009 – August 2009**

DHS Intern & ORNL Co-op Student **June 2008 – March 2009**

Participated in the design and development of the *Sensorpedia* project, an effort to use lightweight web standards for aggregation of heterogeneous sensor data. Responsibilities included research and evaluation of emerging standards, software framework development, branding and graphic design, and backend programming. Created a prototype emergency response system for one of the facilities on site. Authored public tutorials for interfacing sensors using embedded systems. Prototyped an iPhone application and associated web service for Sensorpedia. Worked under a different investigator to prototype cross-platform mobile applications for emergency response. Continued under a third investigator to prototype a schema-less data stores and flexible workflows for bioinformatics and medical applications. Worked as a member of the *Computational Sciences and Engineering Division*.

RIT Center for Imaging Science

Laboratory for Imaging Algorithms and Systems, Rochester, New York

Contact: Robert Kremens, Ph.D., kremens@cis.rit.edu (585)475-7286

Laboratory Assistant **April 2007 – present**

Supported wildfire research; worked on management of data flow from distributed sensors, remote sensing, C# programming, embedded systems, systems integration, mechanical design, mechanical assembly, and web development

RIT Department of Information Technology, Rochester, New York

Contact: Jon Schull, Ph.D., jis@it.rit.edu (585)738-6696

Teaching Assistant

March 2009 – May 2009

Research Assistant

January 2009 – May 2009

Developed an embedded hardware solution for aggregating data from mobile phones, and created an associated web service to provide this information in real-time. Acted as a teaching assistant to an undergraduate and graduate course covering topics in *Innovation and Invention*.

HONORS AND
AWARDS

Academic Honors: US Department of Energy SERCh Poster Competition Finalist, 2009
RIT Student Innovation Award, Spring 2009
Dean's List, multiple quarters (RIT)
President's List (DCC)
Phi Theta Kappa (DCC)

Scholarships: Department of Homeland Security Full Scholarship (2010-2012)
RIT Presidential Scholarship
Carlson Family Scholarship
Carlson Imaging Excellence Scholarship
Nathaniel Rochester Society Scholarship

SELECTED
COURSEWORK

Computing: Computer Science I-IV; Database and Data Modeling

Imaging Science: Radiometry; Geometrical Optics; Detectors; Color Science; Programming for Imaging Science; Vision and Psychophysics; Imaging in the Physical Sciences; Intro to Imaging Systems;

General Science: University Physics I, II, III;
General and Analytic Chemistry I, II, III;
Organic Chemistry I; Modern Physics

Life Sciences: Bioinformatics; Molecular Biology; Cellular Biology; Genetics; Genetic Engineering; General Biology I-III

Mathematics: Single and Multivariable Calculus; Discrete Math I,II;
Data Analysis; Biostatistics

Special Topics: Computers, Instruments, and Data Acquisition Techniques

PUBLICATIONS

Conference Proceedings

Gorman, B.L., Resseguie, D.R., Tomkins-Tinch, C.H. Sensorpedia: Information Sharing Across Autonomous Sensor Systems. International Symposium on Collaborative Technologies and Systems 2009 (CTS 2009). May 18-22, 2009, Baltimore, Maryland. Page(s):448 - 454

Shankar, M., Tomkins-Tinch, C.H. Addressing Extensibility Requirements for Health Informatics Data. Extended abstract accepted for the 2012 ACM SIGHIT International Health Informatics Symposium (IHI 2012). Jan. 28-30, 2012. Miami, Florida.

Posters

Kremens, R.L., Drake, R., Hovey, A., Bove, G.E., and Tomkins-Tinch, C.H. Inexpensive Buoys for Environmental Education and River Water Quality Assessment. Poster session at the *International Association for Great Lakes Research* 51st Annual Conference, May 19-23, 2008, Peterborough, Ontario, Canada.

Tomkins-Tinch, C.H., Resseguie, D.R. The Sensorpedia Mobile Framework: Enabling Citizen Sensors. Poster session at the US Department of Energy Science and Energy Research Challenge National Student Poster Competition, November 9, 2009, Oak Ridge, Tennessee.

Tomkins-Tinch, C.H., Shankar, M. A Schema-less Key-Value Store for Bioinformatics Annotation Data. Poster session at the undergraduate research symposium, August 4, 2010, Oak Ridge, Tennessee.

TECHNICAL
SKILLS

Operating Systems: UNIX/Linux, Mac OS X, Microsoft Windows, DOS
Languages: *English*, Python, C#, C/C++, Java, LabVIEW, JavaScript/HTML/CSS, , PHP, Obj-C, IDL, BASIC, SQL
Frameworks: Django, Zend Framework, OpenCV, CocoaTouch
Drafting: AutoCAD
Hardware: PCB design and layout, soldering, microcontrollers, laser-cutting and 3-D rapid prototyping
Publishing: L^AT_EX, Microsoft Office

LABORATORY
SKILLS

optical spectroscopy, optical and fluorescent microscopy, thin-layer chromatography, centrifugation, organic extractions, southern blots, recombinant DNA techniques, SDS-PAGE, agarose gel electrophoresis, bacteriological culture including aseptic technique, CsCl gradient purification of nucleic acids

PERSONAL
PROJECTS

Created **www.takeitapart.net**, a website for sharing disassembly guides of electronics and other hardware. Previously featured on the BBC World television channel, the site is undergoing a rewrite and will re-launch at www.takeitapart.com

PROFESSIONAL
MEMBERSHIP

AAAS(The American Association for the Advancement of Science)
IEEE(Institute of Electrical and Electronics Engineers)
IEEE Communications Society
SPIE(Society of Photo-Optical Instrumentation Engineers)

COMMUNITY
ACTIVITIES

RIT Caroline Werner Gannett Project Speaker Series (<http://www.cwgp.org>)
Advisory Board Core Working Group **September 2007 – present**

RIT Make Club (<http://www.makeclub.org>)
Founder and acting President **January 2008 – May 2010**

Imaging Science and Technology Club (RIT Student Chapter)
Member **Fall 2006 – Spring 2008**

Outing Club (RIT)
Member **Fall 2006 – present**

Boy Scouts of America
Eagle Scout and Merit Badge Counselor **1998 – present**