Timothy L. Tickle, Ph.D.

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Education:

University of North Carolina at Charlotte May 2011
Doctor of Philosophy in Bioinformatics and Computational Biology Charlotte, NC
Dissertation: "Data Mining the Serous Ovarian Tumor Transcriptome". Topic included: Ovarian Tumor Genetics, Microarray Analysis Techniques, Biomarker Discovery, and Transcript-level Analysis.

University of North Carolina at Charlotte August 2004
Bachelor of Science Charlotte, NC
Major: Computer Science
Research Project: Design of bioinformatics software valuable for Ovarian Cancer Analysis.

Wake Forest University May 1999
Bachelor of Science Winston-Salem, NC
Major: History Minor: Education

Research Interests:

Experienced in applying high-throughput technology to complex diseases. Interested in both generating datasets, and implementing analysis infrastructure for large data sets. Focused on applying microarray chip technology, next generation sequencing, and their combination in basic and translational experimentation, explicitly when related to clinical studies.

Peer Reviewed Publications:

T. L. Tickle, Z. Baharani-Mostafavi, J. W. Weller, K. J. Thompson, C. Richardson, D. L. Tait, and M. T. Mostafavi, "Serous ovarian benign tumor and type ll carcinoma data set for expression and paracrine signaling investigation," 2012. In Preparation.

T. L. Tickle, *Data Mining the Serous Ovarian Tumor Transcriptome*. PhD thesis, University of North Carolina at Charlotte, 2011.

Z. Mostafavi, J. Zhang, K. Bennett, J. Vachris, M. Spencer, M. T. Mostafavi, and D. Tait, "Correlation analysis of hox, erbb and igfbp family gene expression in ovarian cancer," *Cancer Investigation*, vol. 26, pp. 990–998, 2008.

A. Fodor, T. Tickle, and C. Richardson, "Towards the uniform distribution of null p values on affymetrix microarrays," *Genome Biology*, vol. 8, no. 5, 2007.

Public Data Sets Developed:

Serous ovarian benign tumor and type II carcinoma data set for expression and paracrine signaling investigation (GEO# GSE29156).

Honors, Awards, and Assistantships:

GAANN Scholars Fellowship	2009-2011
UNC-Charlotte Biotechnology Conference Finalist	2010
TA of the year for the College of Computing and Informatics	2008
Received the Essam El-Kwae award for student-faculty research	2005
Reward received for "Ovarian Cancer Research Using Microarray Analysis"	
Graduated *Cum Laude* from the University of North Carolina at Charlotte	2004
Graduated *Cum Laude* from Wake Forest University	1999

Conference Posters and Abstracts:

T. Tickle and J. Weller, "A transcript-level gene model validation tool," *Bioinformatics*, vol. 26, no. 20, 2010.

T. Tickle and M. T. Mostafavi, "Using logical sets to target gene expression patterns," *ISBRA 2007 Poster Proceedings*, vol. 48, 2007.

T. Tickle, Z. Bahrani-Mostafavi, J. Hall, and M. T. Mostafavi, "Towards a systems understanding of malignant ovarian cancer," *Proceedings of the American Association for Cancer Research*, vol. 48, 2007.

T. Tickle, J. Vachris, J. Zhang, S. G. K. McKinney, D. Tait, J. Hall, Z. Bahrani-Mostafavi, and M. T. Mostafavi, "Pax8, a human paired box gene, is over-expressed in ovarian cancer," *Proceedings of the American Association for Cancer Research*, vol. 47, 2006.

T. Tickle, J. Zhang, K. McKinney, J. Vachris, S. Gurlov, Z. Bahrani-Mostafavi, J. Hall, and M. T. Mostafavi, "Analysis of ovarian cancer microarray data with an application specific database," *Proceedings of the American Association for Cancer Research*, vol. 46, 2005.

Invited Presentations:

Ovarian Serous Type I,II Tumor Data Set for Expression and	Mar 2011
Paracrine Signaling Investigation	
(Carolinas Medical Center, Cannon Research Community)	
Data Mining the Ovarian Tumor Transcriptome	Feb 2011
(UNC-Charlotte's Department of Bioinformatics and Genomics)	
Harnessing the Secrets of Life: How Bioinformatics is Changing Our World	
(Queens University)	Apr 2010
(Wingate University)	Mar 2010
Presented Multiple Presentations on Microarray Technology	May-Dec 2005
(UNC-Charlotte's Bioinformatics Research Group)	
(UNC-Charlotte's Computer Science Research Seminar)	
(UNC-Charlotte's Graduate Research Fair)	
Bioinformatics: A Study of Ovarian Cancer	May 2004
(Carolina's Medical Center, Molecular Biology Core Facility)	

Guest Lecturing:

Mentor Graphics Tutorial — Sept 2010
(Computer Systems Lab and Recitation; UNC-Charlotte)
Microarray Technology — Apr 2010
(Bioinformatics; Davidson College)
Unit Testing in Python — Mar 2010
(Bionformatics Progamming I; UNC-Charlotte)
Mentor Graphics Tutorial — Sept 2009
(Computer Architecture/Hardware Design; UNC-Charlotte)
Unit Testing in Python — Nov 2009
(Bioinformatics Programming I; UNC-Charlotte)

Professional Societies:

The International Society for Computational Biology — 2010-Present
American Association of Cancer Researchers — 2004-2007

Research Experience:

Research Assistant — Fall 2007-Present
College of Computing and Informatics (UNC-Charlotte) — Charlotte, NC
Was responsible for all work associated with the ovarian exon tumor transcriptome study. Solely performed all wet-lab protocols and dry-lab analysis (excluding chip hybridizations performed at an off-site core facility).

- Developed and performed wet lab protocols including: sample preparation and storage; tissue staining; pathology evaluation; cryosectioning; laser capture microdissection; immunohistochemistry; RNA extraction, and isolation; and cDNA generation, amplification, and preparation for Affymetrix GeneChip Human Exon 1.0 ST Arrays.
- Managed ordering and storage of all associated reagents.
- Participated in training other team members and interns in various wet lab protocols.
- Formulated analysis and quality control protocols for exon data.
- Learned and developed software and database solutions to perform exon analysis.

Teaching Experience:

Instructor Fall 2010

Introduction to Bioinformatics (UNC-Charlotte) Charlotte, NC

Acted as the instructor of record; mentoring faculty Cynthia Gibas, PhD. Was solely responsible for designing and teaching the first undergraduate introductory bioinformatics class. Specific responsibilities included:

- Selecting the subject matter and deriving a calendar and syllabus.
- Designing and delivering all lectures and associated presentations.
- Creating all lab content and holding classroom lab time.
- Developing assessment activities including testing, review sessions, and homework.
- Grading all labs, testing, and homework.
- Guiding students on culminating projects.
- Holding biweekly office hours and managing specific needs of students as they arose.
- Evaluations available upon request.

Teaching Assistant Fall 2004-Fall 2007

College of Computing and Informatics (UNC-Charlotte) Charlotte, NC

ITCS 3050 (Intro to Bioinformatics), ITCS 6160 (Programming for Biologists), ITCS 2181(Computer Logic & Design), ITCS 3183 (Hardware Systems Design), ITCS 3181/5141 (Computer Organization & Architecture) and ITCS 3650/3651 (Senior Projects).

- Assisted professor in creating course content and developing course topics.
- Researched, installed, and taught the use of infrastructure used for the course.
- Taught classes on programming and how to use class related software.
- Held office hours and assisted students during lab sessions.
- Assisted in writing and grading exams.

Instructor Fall 2005-Fall 2006

Profession Development Series (UNC-Charlotte) Charlotte, NC

Team taught the "Update on Microcomputer and Internet Technology" professional development course.

- Created a complete day of instructional presentations spanning seven hours of content.
- Researched and developed a class lab focusing on direct experiences related to the instructional presentations.
- Assisted in presenting the morning instructional session, setup, and ran the lab and presented the afternoon instructional session.
- Created class surveys, questionnaires, and handouts.

Intern Fall 2004-Fall 2005
UNC-Charlotte and Carolinas Medical Center Charlotte, NC
Acted as a Research Intern for Carolinas Medical Centers Blumenthal Cancer Research Center in collaboration with the University of North Carolina at Charlotte.

- Assisted the installation, use, and upkeep of bioinformatics software.
- Gave presentations on bioinformatics algorithms and techniques that may be useful for the Molecular Biology Core Facility.
- Performed analysis on microarray and other data for projects and publications.
- Assisted in writing grants and publications.

Other Professional Experience:

Application Developer May 2003-August 2004
The Vanguard Group Charlotte, NC
Acted as and was given the full responsibility of a Netcentric Developer.

- Developed netcentric services (web applications) from design documents.
- Participated in code reviews, presentations, unit testing, performance testing, client acceptance testing and troubleshooting.
- Lead a focus group on the creation and maintenance of automated regression suites.
- Was solely responsible for migrating emailing web services to an in-house web service.
- Coordinated and tested web service environment settings with database administrators.

Student Computing Technician III July 2002-May 2003
Department of Information Technology and Services UNC-Charlotte
Acted as first contact in assisting staff and faculty in resolving issues with computer use. Issues involved, but were not limited to, troubleshooting of applications, networking and computing services; notifying administrators of server and network issues; and consulting users with computer use.

Computer Skills:

Internet: HTML, Dreamweaver, various emailing, internet and FTP programs
Operating Systems: Windows (current), Mac OS (current desktop and server), Linux (Ubuntu)
Programming and Scripting Related: JavaScript, C/C++/C#, Java (J2SE,J2EE), JDBC, Java 2D API, JSP, XML, JUnit, SQABasic, Perl (OOP), Perl DBI, Python
Statistical Related: SAS, R, Matlab
Bioinformatics Related: BLAST, TimeLogic products, OMP, Partek Genomics Suite, DataFate and other tools
Databases: Oracle, Postgres, SQL
Other Applications: Rational Rose, Visio, Websphere, PVCS Manager and Tracker, Eclipse, Rational Test Suite, Visual Studio.net, Adobe Photoshop CS4, LaTeX, bibTeX

Wet Lab Skills:

Antibody Based: Immunohistochemistry
Laser Capture Microdissection: Manual (PixCell IIe) and Automated (ArcturusXT™); cut and capture, cryosectioning
General Molecular Biology Techniques: Purification columns, affynity beads, RNA (extraction, isolation), cDNA (isolation, amplification), Nanodrop, Bioanalyzer
Human Study Specific: Human tissue and fluid (serum) preparation for tissue bank, familiar with ovarian tumor pathology
Next Generation Sequencing: cDNA library construction, emulsion PCR (emPCR), Ion Torrent
Microarray Related: ST-cDNA conversion, cDNA fragmentation and labeling, sample preparation for Affymetrix GeneChip Human Exon 1.0 ST Arrays using NuGEN products
Staining: Hemotoxylin and eosin, HistoGene

Literary Works:

T. Tickle, "Me and the rain," in *3 to 4 ounces*, Wake Forest University, 1994.

T. Tickle, "Running," in *3 to 4 ounces*, Wake Forest University, 1994.

T. Tickle, "Bonsai baby," in *3 to 4 ounces*, Wake Forest University, 1994.