

## Charles P. Schmitt, Ph.D.

### Professional Preparation:

- **Ph.D. Computer Science**, University of North Carolina, Chapel Hill, NC, 1999. Major focus: Computational Neuroscience & Computer Vision, Minor focus: Distributed and Parallel Programming.
- **B.S. Physics**, University of North Carolina, Chapel Hill, NC, 1989

### Appointments:

Renaissance Computing Institute, *Manager of Biosciences Group, Senior Researcher–Data Mining*, 2006+

BD Technologies, *Senior Computer Scientist*, Bioinformatics Group, 2002 to 2006

Yankelovich, Inc., *Senior Architect/Director of Software*, 2001 to 2002

Analytika, Inc, *Senior Computer Scientist*, Data Mining Group, 1999 to 2001

University of North Carolina at Chapel Hill, *Research Assistant*, 1995 to 1999

IBM Corp, *Software Engineer*, 1991 to 1994

Millidyne Inc, *Software Technician*, 1989 to 1990

### Relevant Professional Activities:

- Lead software architect at BD on the development of a bioinformatics software platform named MPM. MPM is a multi-user, distributed informatics platform for capturing, archiving, visualizing, and analyzing data from biological assays, including immunofluorescent, microscopy, flow cytometry, and genomic data. It includes support for data import, normalization, calibration, statistical analysis, data-mining, and distributed computation in addition to LIMS (laboratory information management system) support. Led integration of technology with three commercial products, MPM Admet, MPM Solubility, and Multiwell Auto Sampler, and in supporting a GMP-validated manufacturing process for the BD Lyoplate service.
- Lead software architect at BD on the development of a database driven knowledge representation system used for analyzing and interpreting biological data in the context of cellular signaling pathways. System includes data from several public databases, proprietary and public signaling pathways, and several public and proprietary ontologies related to biological function. System also includes graph editing, visualization, querying, and graph-based analysis capabilities.
- Senior Architect at Yankelovich, Inc. on the development of statistical and data-mining technologies and software products for clients in several fields. Including development of an informatics platform for drug discovery and high throughput screening, a web-based system for capturing, analyzing, and text mining of user questionnaire data, and providing statistical and data-mining consultation for Fortune 500 clients.
- Senior Scientist at Analytika, Inc. Lead the development of statistical, optimization, and data-mining methodologies for two commercial products, ScriptMax Sentry and ScriptMax Optimizer, which were built on large databases of sales and prescription

writing histories. Provided statistical and data-mining consultation to Fortune 500 pharmaceutical companies.

**Expertise Summary:**

Charles Schmitt has 15 years of experience in developing production-level software applications and 20 years experience in software development. This includes leading the design and development of several commercial bioinformatics platforms, as well as leading the development of a distributed laboratory information management systems (LIMS). He has significant experience in data-mining and data-analysis, having developed the analytical capabilities for several commercial products, including the Analytika ScriptMax Sentry and ScriptMax Portfolio Optimizer, working for several years as an analytical consultant to Fortune 500 companies, and developing the optimization methods supporting the BD Lyoplate technology. He currently manages the Biosciences Group at the Renaissance Computing Institute, where he leads the application of advanced IT and computing approaches to solving problems in biosciences and medical sciences.

**Publications/Conferences:**

- Fecho K, Faison J, Nackley AG, Schmitt CP, Maxner W, "Effects of Carrageenan and Morphine on Acute Inflammation and Pain in Lewis and Fischer Rats", *Brain, Behavior, and Immunity*, 2006.
- Spidlen J, Gentleman R, Haaland P, Ochs MF, Schmitt CP, Smith S, Treister AS, Brinkman RR, "Proposed gating standard for flow cytometry", *International Society for Analytical Cytology*, 2006.
- Leonard J, Wang X, Schmitt CP, Wilson D, Haaland P, "Connected Subgraphs of the Human Receptome" *Research in Computational Molecular Biology*, 2006.
- Schmitt CP, Haaland P, "Organizing Gated Results for Analysis", *Fifteenth Cytometry Development Workshop: Technologies for Cell Analysis*, 2005.
- Weigman V, Leonard J, Schmitt C, Haaland P, "Creation of a biological-relevant simulation environment for incorporation of multi-dimensional data for prediction of patient outcomes", *Intelligent Systems for Molecular Biology*, 2005.
- Schmitt CP, Haaland P, Leonard J, Sairam A, Wilson D, "Issues in Pathway Bioinformatics", *NC Symposium on Biotechnology & Bioinformatics*, 2004.
- Haaland P, Mitchell M, Wilson D, Chaney B, Schmitt CP, Heidarani M, "Highly Automated DOE for Complex Biological Experiments", *Joint Statistical Meetings*, 2004.
- Marshall JA, Schmitt CP, Kalarickal GJ, Alley RK, "Neural model of transfer-of-binding in visual relative motion perception." *Computational Neuroscience: Trends in Research 1998*, JM Bower, ed., December 1998.
- Schmitt CP, Marshall JA, "Effects of coherence and context on visual motion grouping: A self-organizing neural model." *Investigative Ophthalmology & Visual Science* 37(4):483, March 1996.
- Schmitt CP, Marshall JA, "Development of a neural circuit for motion grouping and disambiguation." *Investigative Ophthalmology & Visual Science* 36(4):377, March 1995.