Michael J. Bassetti

CONTACT INFORMATION

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RESEARCH INTERESTS

DNA synthesis and sequencing techniques, gene assembly, microfluidics, MEMS, semiconductor fabrication and processing, high-throughput fluidic delivery systems, control systems and automation, systems integration.

EDUCATION

University of Wisconsin-Madison, Madison, Wisconsin USA

Ph.D. candidate, Department of ECE (expected graduation date: May 2006)

- Research Topic: DNA synthesis and gene assembly
- Advisor: Prof. Franco Cerrina

M.S., Biomedical Engineering, December 2002

- Thesis title: "Development of an Electrically-Triggered Hydrogel Actuator for Microfluidic Applications"
  `http://www.cae.wisc.edu/~mjbasset/pubs/MB_MSthesis.pdf`
- Advisor: Prof. David J. Beebe

University of Illinois at Urbana-Champaign, Urbana, Illinois USA

B.S. (with honors), Electrical Engineering, December 1998

HONORS AND AWARDS

University of Illinois: graduated with Honors in Electrical Engineering, Eta Kappa Nu, 1998
Edmund J. James scholar, 1993-1995
Genomic Sciences Training Program Predoctoral Fellow, 2004-present

ACADEMIC EXPERIENCE

University of Illinois at Urbana-Champaign, Urbana, Illinois USA

Undergraduate Research Assistant - Dept. of ECE **December 1997 - December 1998**
Performed work under Prof. David J. Beebe in the area of microfluidics and MEMS. Primary duties involved fabrication of microchannel networks by photopatterning of polymer materials. Supported graduate students as needed. Also, repaired and performed maintenance on cleanroom and laboratory equipment.

University of Wisconsin-Madison, Madison, Wisconsin USA

Research Assistant - Department of Biomedical Engineering **January 2001 - January 2003**
Performed microfluidics research under Prof. David J. Beebe, furthering work done at the University of Illinois as an undergraduate student. Created microfluidic flow control components built from stimuli-responsive materials, primarily hydrogels.

Research Assistant - Dept. of Electrical and Computer Engineering **January 2003 - present**
Research (under Prof. Franco Cerrina) involves the synthesis of DNA fragments and their assembly into longer length segments. Work has primarily involved the design, assembly, and implementation of a custom DNA synthesis machine, and the development of microfluidic methods for the automation of total gene synthesis.

Peer Reviewer
Reviewed articles submitted for publication to the following journals:

- Journal of Microelectromechanical Systems (JMEMS)
- Applied Physics Letters
- Lab on a Chip

Publications

Bassetti, Michael J., Aveek N. Chatterjee, Narayana R. Aluru, and David J. Beebe, Development and modeling of electrically-triggered hydrogels for microfluidic applications, To be published in *Journal of Microelectromechanical Systems*, October 2005.

Conference Presentations

Bassetti, Michael, Kathryn E. Richmond, Matthew J. Rodesch, Changhan Kim, Michael R. Sussman, and Franco Cerrina, Progress in the development of an automated gene synthesis method, *The Biology of Genomes meeting at Cold Spring Harbor Laboratory 2005.* (Poster presentation)
`http://www.cae.wisc.edu/~mjbasset/pubs/MB_CSHL05.ppt`

Kim, Changhan, Michael J. Bassetti, Mo-huang Li, and Franco Cerrina, DNA microarrays: Light-directed DNA synthesis sequence error analysis, *International Conference on Micro- and Nano-engineering 2004.* (Delivered talk)
`http://www.cae.wisc.edu/~mjbasset/pubs/MB_MNE04.pdf`

Bassetti, Michael J., Jeffrey S. Moore, and David J. Beebe, Development of electrically triggered hydrogels for microfluidic applications, *Proceedings of the 2nd Annual International IEEE-EMBS Special Topic Conference on Microtechnologies in Medicine and Biology*, 410-413, 2002. (Poster presentation)
`http://www.cae.wisc.edu/~mjbasset/pubs/MB_MMB02.pdf`

Bassetti, Michael J. and David J. Beebe, Demonstration of hydrogel volume control using pulse width modulation, *Proceedings of the μTAS 2002 Symposium*, 718-720, 2002. (Poster presentation)
`http://www.cae.wisc.edu/~mjbasset/pubs/MB_uTAS02.pdf`

Professional Experience

Automation Solutions, LLC, Redmond, Washington USA
Systems engineer **January 1999 - August 2000**
Firm specializes in motion control and machine automation. Responsibilities included supporting customers over the phone and at their jobsite, making sales presentations, doing mechanical and electrical design, developing complete automation systems, creating software and interfaces for machine control, and project management.

Walden University, NTU School of Engineering and Applied Science
Part-time faculty **August 2004 - present**
Administer courses in microelectronics processing and semiconductor device fabrication.

Computer Skills

- Languages: Visual Basic, C, C++, Matlab, several motion control languages.
- Software: Visual Studio (Basic and C++), LaTeX, common Windows database, spreadsheet, and presentation software.
- Applications: Extensive experience programming automation systems, robotic motion, and machine interfaces. Finite-difference methods for mechanical, fluidic, and electromagnetic systems. Database and information management.
- Operating Systems: Unix/Linux, Windows, Macintosh.