

Matthew Adams Wettergreen, Ph.D.

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Phone: 713.825.4613 Email: mwettergreen@gmail.com

Qualifications: Background in biomechanics and tissue engineering based experimentation including instrumentation, finite element analysis; expert level computer aided design and rapid prototyping skills; advanced technical scientific and grant writing; broad knowledge of physiology, mechanical engineering and biology; strong analytical, communication and teaching skills. Secondary background arts and arts organization management: film, music, non-profits; experience with conference and event planning and production; experience with community building, strategy and management and product/community evangelism.

EDUCATION & AWARDS

2008 Ph.D. Bioengineering, Rice University, Houston, TX

Awards: Best Poster, Biomaterials Section, IBB Symposium, 2005. Travel Grant, Fifth International Bone Fluids Workshop, Cleveland, Ohio, 2003. Soffen Travel Grant, 13th Interdisciplinary Research Conference on Biomaterials, Baltimore, MD, 2003

2001 B.S. Bioengineering, University of Illinois-Chicago, Chicago, IL

Awards: Student Award of Excellence, Sigma Xi Scientific Honor Society, 2000. Chancellor Student Service Award: For distinguished leadership, 1999-2001.

CURRENT POSITION

coFounder, coDirector

Caroline Collective

Since March 2008

Responsible for maintaining and running the largest coworking space in the world, developing community based education models and organizing forums for discussion and idea sharing that create opportunities for individuals and groups to be more successful

- Development of educational programming enabling individuals or businesses to succeed in solidifying their online/offline presences
- Design and execution of offline marketing and promotion of events, conferences, services
- Implementation of online marketing strategy including community based sites and standard web tools
- Business development planning to expand demographic and reach
- Public speaking and consulting on the importance of local community for business development

PREVIOUS EXPERIENCE

Graduate Research Assistant

January 2002 to May 2008

Rice University, Department of Bioengineering

Area of Research: Computer Aided Tissue Engineering of skeletal tissue defects

- Designed and optimized novel scaffolds bone regeneration scaffolds for load bearing applications
- Use of rapid prototyping, injection molding techniques, +/- casting, solid reconstruction using imaging techniques, computer modeling and simulation, finite element modeling
- Managed undergraduates in self-designed research projects

Research Assistant

September 1999 to May 2001

University of Illinois – Chicago, Department of Bioengineering

- Employed microfluidics to study the vascularization endothelial/fibroblast co-cultures on biomaterial substrates
- Experience with microfabrication, polymer formation, cell culture and basic staining procedures, microfluidics, biomaterials
- Responsible for training staff in molecular biology, animal, and virology procedures

TEACHING EXPERIENCE

Rice University, Department of Bioengineering, Houston, TX

Instructor, Spring 2008, BIOE 320 – Systems Physiology Laboratory

- Led students in hands on experiments measuring physiological systems
- Designed course instruction, supplementary materials and assignments

Instructor, Fall 2006, Fall 2008, BIOE 451 – Bioengineering Design

- Taught Computer Aided Design module of Senior Design course

Teaching Assistant, Fall '04, Fall '05, BIOE 451 – Bioengineering Design

- Instructed students to use IronCAD, Computer Aided Design package

Teaching Assistant, Fall '03, BIOE472 – Advanced Biomechanics

- Held problem sessions and graded homework and tests

Teaching Assistant, Spring '03, BIOE 372/690 – Introduction to Biomechanics

- Held problem sessions and graded homework and tests
- Modified existing class project utilizing MATLAB and image analysis

Teaching Assistant, Fall '02, BIOE 342 – Bioengineering Laboratory

- Aided students in design and execution of experiments
- Set up for experiments in cell culture, GPC, biomaterial synthesis, mechanical testing

Drexel University, Department of Mechanical Engineering, Philadelphia, PA

Teaching Assistant, Summer 2006, ME – Computer Aided Design

- Instructed students in AutoCAD in recitation sessions

University of Illinois – Chicago, College of Engineering, Fall '99, Fall '00, Chicago, IL

Teaching Assistant, ENGR 100 – Introduction to Engineering

- Instructed three student sections
- Prepared and presented relevant lecture material in concert with course
- Created and graded assignments, issued final section grade

PUBLICATIONS

Refereed Publications

1. Wettergreen MA, Bucklen BS, Lohfeld S, Mikos AG, Liebschner MAK. "Structural Properties of Regular Architectures, Part 2: Experimental Validation of Finite Element Structural Comparison and Development of a Correlative Geometric Model," In Preparation.
2. Wettergreen MA, Bucklen BS, Mikos AG, Liebschner MAK. "Structural Properties of Regular Architectures, Part 1: Geometric Characterization and Finite Element Structural Comparison of Platonic and Archimedean Solids," In Preparation.
3. Wettergreen MA, Bucklen BS, Sun W, Liebschner MA. "CAD assembly process for bone replacement scaffold in Computer-Aided Tissue Engineering," In Bidanda, Bartolo: *Virtual and Rapid Prototyping in Medicine*, Springer, 2007.
4. Wettergreen MA, Abbe RA, Sun K, Hess KR, Rhines LR, Liebschner MA. "Modulation of Drug Release Kinetics of Doxorubicin from Composite Polymethyl Methacrylate Bone Cement." In Preparation.
5. Bucklen BS, Wettergreen MA, Liebschner MAK. "Bone-derived CAD Library for Assembly of Scaffolds in Computer-Aided Tissue Engineering", Special Issue, Shape Similarity Detection for CAD/CAE, *Computer Aided Design*. (Submitted).
6. Bucklen BS, Wettergreen MA, Liebschner MA. "Mechanical Aspects of Tissue Engineering." *Seminars in Plastic Surgery*. Volume 19, Number 3, 2005.
7. Yuksel EY, Choo J, Wettergreen MA, Liebschner MA. "Challenges in Soft Tissue Engineering." *Seminars in Plastic Surgery*. Volume 19, Number 3, 2005.
8. Wettergreen MA, Scheffe J, Mikos A, Liebschner MA. "Microparticle Fabrication for Tissue Engineering Applications using Rapid Prototyping and Soft Lithography Principles." Technical Publication. *Proceedings of ASME International Mechanical Engineering Congress and Exhibition, 2005*.
9. Bucklen BS, Wettergreen MA, Heinkenschloss M, Liebschner MA. "Surface-Based Scaffold Design: A Mechanobiological Approach." Technical Publication. *Proceedings of ASME International Mechanical Engineering Congress and Exhibition, 2005*.

10. Wettergreen MA, Bucklen BS, Starly B, Yuksel E, Sun W, Liebschner MA. "Unit Block Library of Basic Architectures for Use in Computer-Aided Tissue Engineering Of Bone Replacement Scaffolds." Technical Publication. *Proceedings of ASME International Mechanical Engineering Congress and Exhibition, 2005*.
11. Wettergreen MA, Bucklen BS, Sun W, Liebschner MA. "Computer-Aided Tissue Engineering in Whole Bone Replacement Treatment." Technical Publication. *Proceedings of ASME International Mechanical Engineering Congress and Exhibition, 2005*.
12. Wettergreen MA, Bucklen BS, Sun W, Liebschner MAK. "Computer-Aided Tissue Engineering of a Human Vertebral Body." *Annals of Biomedical Engineering*, Vol. 33, No. 10, October, pp. 1394–1404, 2005.
13. Wettergreen MA, Bucklen BS, Starly B, Yuksel E, Sun W, Liebschner MA. "Creation of a unit block library of architectures for use in assembled scaffold engineering." *Computer-Aided Design, Volume 37, Issue 11, 15 September 2005, Pages 1141-1149*.
14. Liebschner MAK., Wettergreen MA.: "Optimization of Bone Scaffold Engineering for Load Bearing Applications." In Ferretti P., Ashammakhi N.: *Topics in Tissue Engineering*, e-book on tissue engineering, T. Waris & N. Ashammakhi, Chapter 22, 2003.
15. Wettergreen MA, Hunniford JW, Crawford JM, Adami GR, "An Adenoviral System For Tetracycline-Regulated TGFβ Expression Mediates A Reversible Cell Cycle Arrest." *Eur J Oral Sci* 2001 Dec;109(6):415-21.

Conference Presentations

1. Wettergreen MA, Sun K, Abbe R, Rhines L, Liebschner, MA. "Controlled Drug Release From Composite Orthopaedic Bone Cement." Proceedings of the ORS, 2006.
2. Ramanujam A, Wettergreen M, Boriek A. Regional Contribution of Muscle Shortening towards Volume Displacement in the Diaphragm of Dog. Drexel University, May 2006.
3. Tawackoli W, Lemoine J, Wettergreen M, Rajapakse C, Gunaratne G, Spanos P, Liebschner M. Vibrational Analysis of Normal and Osteoporotic Trabecular Bone Using Rapid Prototype Duplicates. *International Society of Biomechanics XXth Congress*, August, 2005.
4. McNamara C, Wettergreen MA, Hubmayr R, Boriek AM. "Effects Of Posture And Muscle Shortening On Volume Displacement Of Canine Midcostal Diaphragm." *Proceeding of the American Thoracic Society*. Vol 2, A486, 2005.
5. Wettergreen, MA; Sun, W; Mikos, AG; Liebschner, MAK. "Geometric Characterization of Scaffold Building Blocks For Tissue Engineering." Proceedings of the ORS, 2005.
6. Wettergreen MA., Liebschner M.: "Permeability Prediction of Tissue Engineering Scaffolds Using Mathematical Models." 6th International Bone Fluid Flow workshop, September 30 - October 1, 2004, in Seattle, WA.
7. Wettergreen MA., Lemoine J., Liebschner M., Yuksel E.: "Optimization of Scaffold Regeneration Process Using Negative Templates Created Using Computer Aided Tissue Engineering." *49th Annual Meeting of the Plastic Surgery Research Council*, June 9-12, Ann Arbor, Michigan, 2004.
8. Wettergreen MA., Yuksel E., Liebschner M.: "Optimization of Scaffold Permeability for the Intended Increase of Tissue Vascularization in Prefabricated Implants for Tissue Engineering." *49th Annual Meeting of the Plastic Surgery Research Council*, June 9-12, Ann Arbor, Michigan, 2004
9. Wettergreen MA., Bucklen B., Mikos A., Liebschner M.: "Scaffold Design Using Model-Based Mechanotransduction Principles." *2003 Annual Fall Meeting Biomedical Engineering Society*, October 1-4, Nashville, TN, 2003.
10. Wettergreen MA., Timmer M., Mikos A., Liebschner M.: "Modification Of Porogen Surface To Volume Ratio Can Be Used To Optimize The Permeability Of Scaffolds Used In Tissue Engineering." *Fifth International Bone Fluids Workshop*, September 17-18, Cleveland, Ohio, 2003.
11. Wettergreen MA, Mikos AG, Liebschner MAK, "Tissue Engineering Composite Bone Cement for Reinforcing Osteoporotic Bone." *20th Annual Houston Conference on Biomedical Engineering Research*, April 2003.
12. Liebschner M., Wettergreen MA., Sun K.: "Novel Internal Fixation Device for Use in Osteoporotic Bone." *20th Annual Houston Conference on Biomedical Engineering Research, HSEMB 2003*, April 3-4, Houston, TX, 2003.
13. Wettergreen MA, White JT, Bucklen BS, Lemoine JJ, Liebschner MAK, "Scaffold Optimization for Load Bearing Applications in Orthopaedics." *20th Annual Houston Conference on Biomedical Engineering Research*, April 2003.
14. Wettergreen MA, Timmer MD, Lemoine JJ, Mikos AG, Liebschner MAK, "Design of a Three-Dimensional Composite Scaffold with Varied Engineered Micro-Architecture." *13th Interdisciplinary Research Conference on Biomaterials*, Baltimore, MD, March 2003.

15. Wettergreen MA, Timmer MD, Lemoine JJ, Mikos AG, Liebschner MAK, "Evaluation of an Injectable Composite Bone Cement with Engineered Micro-Architecture." *13th Interdisciplinary Research Conference on Biomaterials*, Baltimore, MD, March 2003.
16. Wettergreen MA, Sun K, Liebschner MAK. "Novel Bone Anchor Concept For Osteoporotic Bone Tissue." *11th Annual Symposium on Computational Methods in Orthopaedic Biomechanics*, February 2003.
17. Wettergreen MA, Adami GR, "A Recombinant Adenoviral System For Tetracycline-Regulated Reversible Cell Cycle Arrest." *11th International Conference on Gene Therapy of Cancer*, December 2002.
18. Liebschner MAK, Wettergreen MA, "Scaffold Optimization for Load Bearing Applications." *Southern Biomedical Engineering Conference Proceedings*, September 2002.
19. Tan W, Wettergreen MA, Desai TA, "Controlling Cell Interactions Of Endothelial Cells And Fibroblasts On Biocompatible Materials By Cellular Micropatterning In Co-Culture." *BMES Conference Proceedings*, October 2000.
20. Jain P, Wettergreen MA, Adami GR, "Cancer Chemotherapy Effects on Normal Cells." *UIC COD Spring Conference Proceedings*, April 1998.
21. Robles SJ, Wettergreen MA, Adami GR, "Cancer Chemotherapeutic Agents Can Cause Permanent Cell Cycle Arrest and a Senescent Like State in Normal Fibroblasts." *Cold Spring Harbor Laboratory Conference: Cancer Genetics and Tumor Suppressor Genes*, August 1998.

Patents

1. Liebschner M., Wettergreen M.: "Computer Assisted Tissue Engineering". Patent Pending.
2. Yuksel E., Liebschner M., Wettergreen M.: "Pre-fabrication of tissue molds for plastic surgery." Patent Pending.
3. Liebschner MAK, Wettergreen MA, Bucklen BS, Sun W. "Computer-Aided Tissue Engineering of a Biological Body" (Submitted).

OTHER EXPERIENCE & COMMUNITY SERVICE

- | | |
|---|------------------------|
| Correspondent, <u>Chicago Public Radio</u> | March 2008 |
| <ul style="list-style-type: none"> • Correspondent for Chicago Public Radio during SXSW 2008 • Conduct interviews with SXSW Interactive and Music Panelists • Post on new trends, technologies, buzz bands, live report via Twitter | |
| Manager, <u>Mitch Marlow Management</u> | Since 2003 |
| <ul style="list-style-type: none"> • Contributed to management of the careers of The Redwalls and Ezra Furman • Setup and maintained artist websites, executed fan based promotional campaigns • Designed and implemented new media campaigns | |
| Co-Organizer, <u>Computational Symposium on Orthopaedic Biomechanics</u> | 2002, 2006-2008 |
| <ul style="list-style-type: none"> • Implemented website and implemented online submission process • Solicited and managed conference submission process • Handled event planning for the day long conference, including proceedings, A/V and food | |
| Contributor, <u>Sound Opinions, National Public Radio</u> | Since 2002 |
| <ul style="list-style-type: none"> • Provide web design and digital media strategy consultation • Generate rich media surrounding weekly interviews and in-studio performances | |
| Program Director, Operations Director, DJ, <u>KTRU 91.7 FM</u> | Since 2001 |
| <ul style="list-style-type: none"> • Host weekly arts and events based radio show: The Revelry Report • Interview and review local arts organizations, events, upcoming shows and benefits • Run live sound and engineer in-studio performances of recording artists • As Operations Director, ran all management aspects of the radio station • As Program Director, responsible for coordinating DJs and evaluating on-air content | |
| Founder and Organizer, <u>Undergraduate Research Symposium</u> | 1999 to 2001 |
| <ul style="list-style-type: none"> • Solicited and managed conference submission process • Handled event planning for the day long conference, including proceedings, A/V and food | |
| Vice President, <u>Undergraduate Student Government</u> | 1998-1999 |
| <ul style="list-style-type: none"> • Managed and chaired student governing body • Implemented online voting system for student elections • Acted as a liaison to faculty and chancellor of UIC • Coordinated and supervised major university-wide events sponsored by GSA | |

ONLINE PRESENCE

coFounder/coDirector: <http://carolinecollective.cc>
Personal and Business Blog: <http://matthewwettergreen.com>
Founder: <http://bandcampus.com>
[Twitter Account](#)
[Facebook Profile](#)
[Flickr Account](#)
[LinkedIn Profile](#)

PROFESSIONAL AND CREATIVE AFFILIATIONS

Computer Aided Design Journal, Reviewer
Journal of Biomechanics, Reviewer
NASA Automated Systems Initiative 2003, Reviewer
[Fresh Arts Coalition](#), Board Member
[Bootown](#), Board Member
The Houston Sound, Founding Member
Planned Parenthood "Party Like A Rock Star" Gala, Co-Chair

CONFERENCE and EVENTS ORGANIZATION

[Undergraduate Research Symposium](#), UIC; [Symposium on Computational Methods in Orthopaedic Biomechanics](#); [BarCampHouston3](#); [Bandcamp](#); [Bandcamp: OFFLINE PROMOTION](#); [Bandcamp: TOURING](#); [Bandcamp: ONLINE PRESENCE](#); [Artcamp](#); [Houston @ SXSW](#); [Biocamp](#);

PANELS AND SPEAKING ENGAGEMENTS

[Biocamp 2009](#)
[Systems of Sustainability](#): Art, Innovation, Action, Panelist
SXSW 2009, "[Building Regional Whuffie](#)" Panelist
[Artcamp](#)
District Area Women's Network
Bandcamp: [OFFLINE PROMOTION](#)
Bandcamp: [TOURING](#)
Bandcamp: [ONLINE PRESENCE](#)
Bandcamp: [SXSW PREP](#)
Houston Netsquared Meeting
SXSW 2007, "The Future of Online Film Distribution" Panelist
Korean National University Visit, Drexel University

TECHNICAL SKILLS

Microsoft Office Suite, Adobe Suite. HTML, Wordpress, Joomla, Drupal, Web 2.0/Social Media Tools. Rhino, Maya, Solidworks, IronCAD, Desk Artes, Cosmos, Mimics, Materialise, ALGOR, Analyze, ABAQUS. Rapid Prototyping, 3D Printing, Fused Deposition, Stereolithography, mold design, +/- casting, injection and centrifugal molding,

SELECTED PRESS

Caroline Collective

[Houston Chronicle: Working Outside the Cubicle](#), April 7, 2008

[ArtsHouston Podcast: Caroline Collective](#), April 14, 2008

002 Magazine, August 2008

[Houston Press: ArtStorm is Houston's Best New Gallery](#), August, 2008

Research

[NASA Tech Briefs, Cover Story](#), April 2004

Personal

[Houston Chronicle: Holly, jolly Christmas sweaters](#), December 19, 2008

[Houston Modern Luxury: Arts and Power Issue](#), December 2008, pg 121

[Houston Modern Luxury: Men of Style Issue](#), April 2008

Bandcamp

[Houston Chronicle](#)

[Space City Rock](#)

[The Skyline Network](#)

[Free Press Houston](#)

[Houston Calling](#)

[Houstonist](#)

[Broken Record](#)

[Houston Press](#)

Artcamp

[Houston Press](#)