

Felipe Gutierrez

1520 Madison St
Madison, WI 53711
☎ +1 (608) 957 4234
✉ fgutierrez3@wisc.edu
📄 [felipegb94.github.io](https://github.com/felipegb94)
Github: [felipegb94](https://github.com/felipegb94)

Research Interests

Scientific computing, machine and statistical learning, high-performance computing, physics-based modeling and simulation, and non-parametric statistics.

Education

2012–2016 **BS. Applied Math, Engineering & Physics, UW-Madison, Cum. GPA: 3.4.**

Advisor: Dan Negrut. Senior Project: "Modeling and simulation of fluid-solid interaction problems on distributed memory architectures using the Charm++ parallel programming paradigm"

2012–2016 **BS. Computer Science (Honors), UW-Madison, Major GPA: 3.6.**

Advisor: Vikas Singh. Thesis: "A framework for designing fast and robust permutation testing using matrix completion: Applications to neuroimaging"

Positions Held

Academic/Research

2013–present **Research Assistant, Simulation-Based Engineering Lab, Madison, WI.**

Collaborated with Prof. Dan Negrut and Dr. Arman Pazouki in the study of parallel programming techniques and technologies for GPU, shared and distributed memory architectures, and their application to fluid-solid interaction problems. Other duties included developing web-based and scripting programs for pre and post processing tasks.

2015–present **Research Assistant, Wisconsin ADRC Imaging Group, Madison, WI.**

Worked with Prof. Vikas Singh and Vamsi Ithapu on improving the scalability, validating, benchmarking, extending, and open-sourcing a novel permutation testing algorithm.

Industry

Summer 2014 **Explorer Intern, Microsoft Corporation, Seattle, WA.**

Performed the overall development of the UX that allows Maps app users to interact with the available layers. The UX addressed desktop, phone and tablet.

Previous Positions

Summer 2013 **Student Help, Madison Plasma Dynamo Experiment, Madison, WI.**

2012–2013 **Web Developer, Dept. of Nutritional Sciences, Madison, WI.**

Awards/Honors

2015 Blue Waters Student Internship Program - National Center for Supercomputing Applications

2014 Frontier Fellowship - Wisconsin Institutes for Discovery

2013 Welton Honors Summer Sophomore Apprenticeship Grant - Honors Program

Publications

In **Felipe Gutierrez**, Vamsi Ithapu, Sterling C. Johnson, Vikas Singh. An SnPM toolbox for fast permutation testing using matrix completion. *In Preparation*.

IDETC/DIE **Felipe Gutierrez**, Arman Pazouki, Dan Negrut. Distributed Memory Fluid-Solid Interaction Simulations
2016 via Chrono::HPC. *ASME IDETC/CIE*, 2016. Abstract Accepted.

IDETC/CIE Daniel Kaczmarek, Aaron Bartholomew, **Felipe Gutierrez**, Hammad Mazhar, Dan Negrut.
2014 Chrono::Render: A graphical visualization pipeline for multibody dynamics simulations. *ASME IDETC/CIE*, 2014.

Presentations

- 2015 **Machine-Ground Interaction Consortium**, Madison, WI.
Leveraging Charm++ for meshless fluid simulations on distributed memory architectures.
- 2013 **UW-Madison Undergraduate Symposium**, Madison, WI.
Small Radio Telescope Probes Dark Matter.

Computer Skills

- 10,000+ lines C, C++, Matlab.
- 1,000+ lines Python, Java, Javascript, C#.
- Parallel Tools CUDA, Charm++, MPI, OpenMP, ArrayFire.
- Tools Unix-based systems, CMake, Makefiles, Git, L^AT_EX, Mex, Armadillo, PostgreSQL, SQLAlchemy.
- Web and App HTML/CSS, WebGL, Three.js, Flask, Windows App Dev.

Outreach and Leadership

- ProCSI Co-coordinator of Promoting the Computational Science Initiative outreach program in 2013 and 2015.
Directed CAD and intro to programming modules.
- Alfabetizacion Volunteer tutor once a week for groups of 2-4 elementary and middle school children in math and english (2010-2011).
- Waterski UW-Madison Waterski team captain, trick coach and competing member.

Coursework

- Graduate Computer Vision, Stochastic Processes, Computational Cognitive Sciences and Electronic Aids in Measurement.
- Comp. Sci Data Structures, Algorithms, Artificial Intelligence, Databases, Operating Systems.
- AMEP Math: 31 credits, Physics: 28 credits, Engineering: 25 credits.

Languages

- Spanish **Fluent** *Native Language*
- English **Fluent** *12 years of study. Lived and studied in the US for 4+ years.*
- French **Intermediate (B1+ level)** *2 years of study. Studied 6 months in France.*

References

Professor Vikas Singh

Associate Professor
Department of Computer Science
UW-Madison
vsingh@biostat.wisc.edu
608 262 8875

Dr. Arman Pazouki

Scientist
Department of Mechanical Engineering
UW-Madison
pazouki@gmail.com

Professor Dan Negrut

Vilas Associate Professor
Department of Mechanical Engineering
UW-Madison
negrut@wisc.edu
608 262 8875