

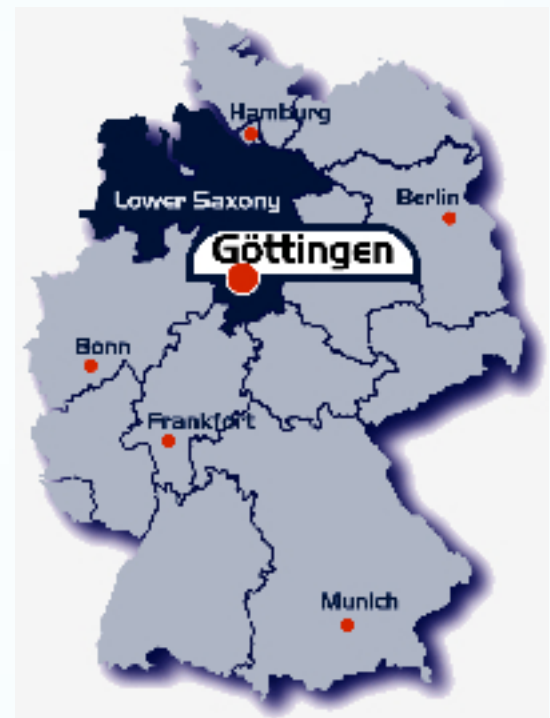
Max Planck Institute for Dynamics and Self Organization

Göttingen, Germany

Kevin Griffin
Class of 2017

Overview

- Göttingen, Germany
 - Medium sized university town
 - Prandtl, Riemann, Gauss, and the Brothers Grim lived here
- Max Planck Institute
 - Government research institute
 - Studies turbulence, dynamics, and biological fluids
 - 8 week program



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Charles Mahaux/Tips

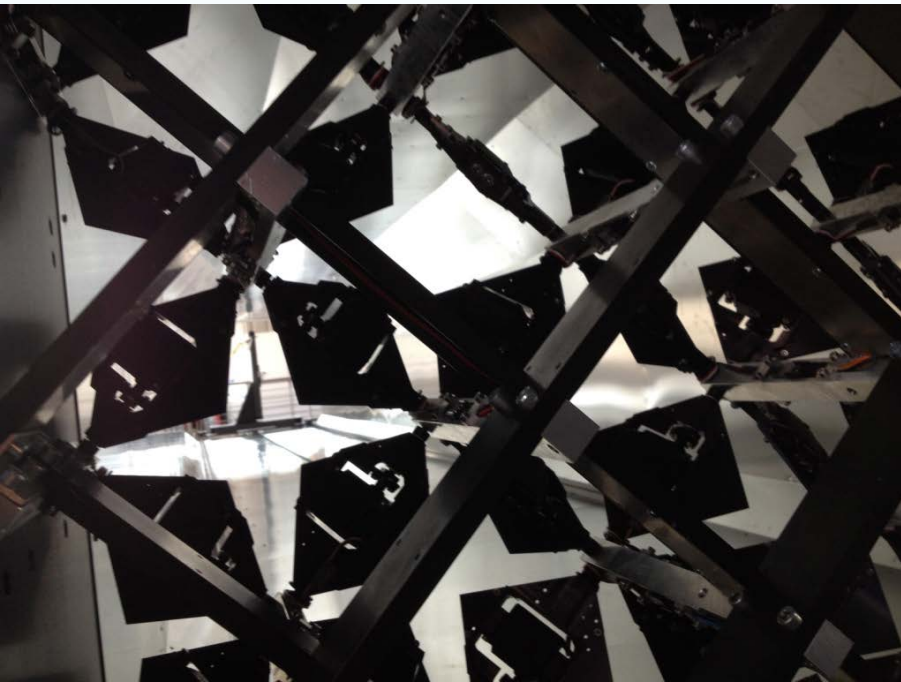
Our Project

- Worked with another IIP intern, Nathan Wei
- Researched turbulence in a wind tunnel
- Research Question: Can turbulence be forced in different ways to change the rate at which it decays.
- We used an apparatus called an active grid to create the turbulence. It is composed of tiny paddles that we can program to move in different ways to control the turbulence.



Typical Work Day

- Take a bus from the institute's guest house across town to the institute.



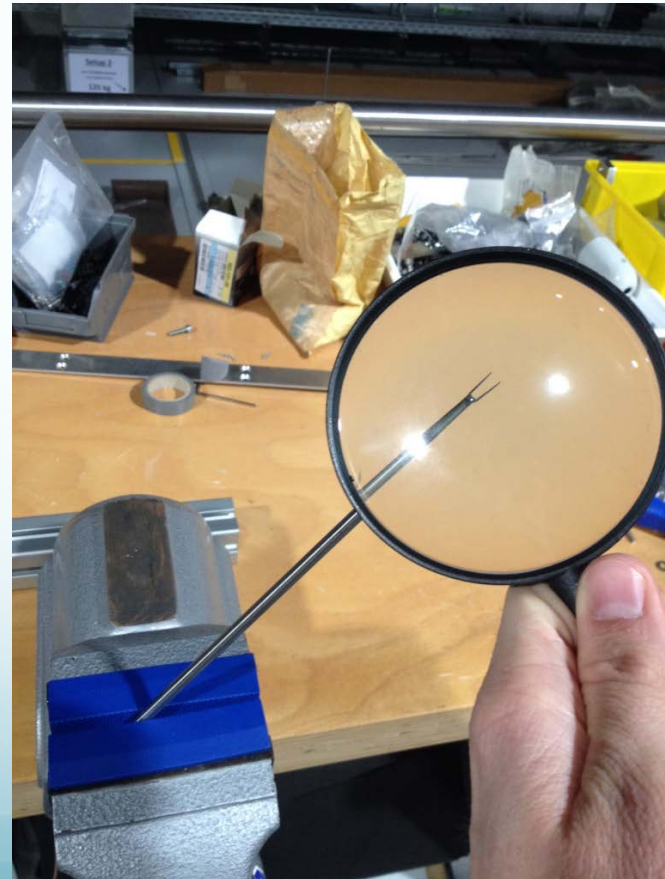
Typical Work Day Cont.

- In our office, we program new ways to move the paddles in the grid. We share this office space with some graduate students at the institute.



Typical Work Day Cont.

- Calibrate tiny velocity probes used for collecting turbulence data



Typical Work Day Cont.

- Lunch at the Institute's cafeteria (lots of nice German food)



Typical Work Day Cont.

- Collect turbulence data in the wind tunnel
- Make repairs or modify the active grid



Typical Work Day Cont.

- Free ice cream in the break room
- Analyze data and make graphs



What I learned

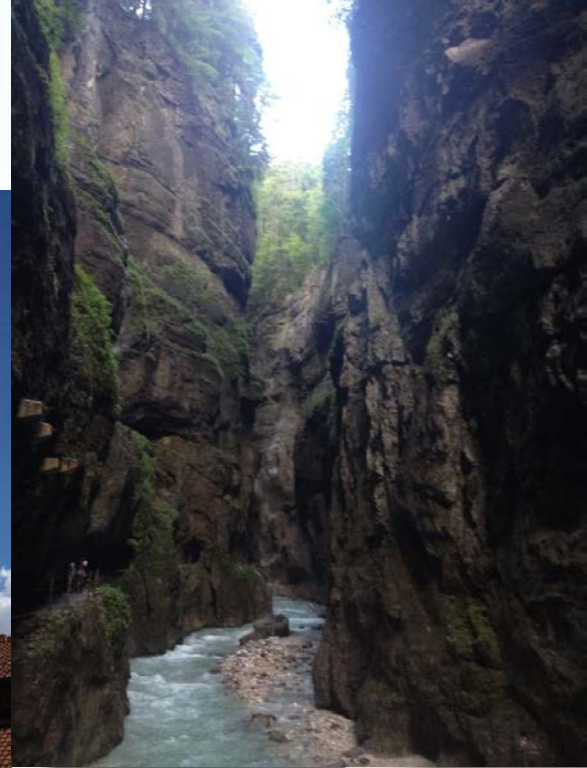
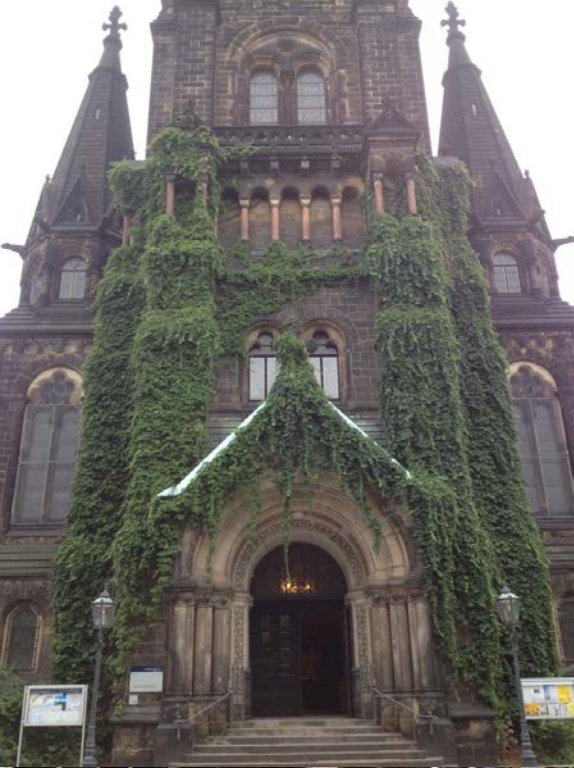
- Programming in C++
- Theory about turbulence and how it decays
- Cutting edge experimental methods for measuring velocity
- All kinds of statistics and cool tricks in MATLAB



Impact on my Academic and Career Goals

- Nathan and I are going to try to continue our project as junior independent work, and we are trying to publish a paper with our advisor.
- This experience has reinforced my desire to pursue a career in aerodynamics and fluids.
- Before the summer, I thought I would prefer a career in industry over one in research, but because of how much I enjoyed this internship, I now think I belong in research.
- I'm now strongly considering getting a Ph.D., while before I was not so sure.

Travel



Cultural Experience

- Learned some basic German (almost everyone also speaks English, but people appreciate when you try)
- Germany has incentivized recycling, and generally people are very conservation minded
- German washing machines and dishwashers are very resource efficient but very slow, so plan accordingly
- No jaywalking! People always wait for the crosswalk to turn green
- Punctuality is very important to most people

Acknowledgements

- Thank you to IIP for this life changing experience
- Thank you to Dr. Greg Bewley and the Max Planck Institute for hosting us