

# JOSHUA CHEN

☎ +49 1578 080 5263    ✉ [joshua.chen@uni-bonn.de](mailto:joshua.chen@uni-bonn.de)

*I am a Masters student in mathematics and computer science, majoring in mathematical logic, data science and machine learning. I am particularly interested in natural language processing, computational journalism, and social media analysis, as well as the application of mathematical logic and type theory to formalized mathematics and theoretical computer science.*

---

## Education

### MASTERS

**Masters in Mathematics**

University of Bonn, Germany  
Oct 2015 – present

### BACHELORS

**B.Sc. (Honours) Mathematics**

The Australian National University, Australia  
Jul 2013 – Jul 2014

First Class Honours

GPA 80% (Scale: 0-100%)

**B.Sc. Mathematics**

University of Canterbury, New Zealand  
Feb 2010 – Nov 2012

Dean's Congratulations

GPA 8.64 (Scale: 0-9)

### HIGH SCHOOL

**Burnside High School**

Christchurch, New Zealand  
2008–2009

Graduated as Dux

**SMK St. Paul**

Seremban, Malaysia  
2004–2007

## Research

*Visualization and enumeration of planar trivalent graphs*

Mar 2015 – Oct 2015

Research assistant

Developed algorithms in Scala to enumerate and automatically draw certain classes of planar graphs, as part of research to understand and classify subfactors and planar algebras.

Code incorporated into <https://bitbucket.org/scottmorrison/toolkit>

*The Temperley-Lieb categories and skein modules*

Jul 2013 – Jul 2014

Honours research thesis

Final year Honours thesis, available on the [arXiv:1502.06845](https://arxiv.org/abs/1502.06845) [math.QA], alternatively at <https://tqft.net/web/research/JoshuaChen/>

*Enumerating integer houses in cyclotomic fields*  
ANU Summer Research Scholarship

Nov 2012 – Jan 2013

Eight-week selective international undergraduate research program at the Australian National University.

## Teaching

- Apr 2017 – present MA-INF 4112: *Intelligent Learning and Analysis Systems: Data Mining and Knowledge Discovery* (University of Bonn)
- Dec 2014 – Jan 2015 EMTH119: *Engineering Mathematics 1B* (University of Canterbury)
- Feb–Jun 2014 MATH1013: *Mathematics & Applications 1* (Australian National University)
- Jul–Aug 2013 MATH120: *Discrete Mathematics* (University of Canterbury)

## Talks & Presentations

- Aug 2014 *Tiling theory and aperiodic tiles*  
ANU Mathematics Society weekly lecture
- Aug 2014 *What is Mathematics?*  
ANU Science Carnival public lecture
- Jul 2014 *Introduction to topological quantum field theory*  
Presentation at the 2014 Australian Mathematical Sciences Student Conference
- May 2014 *Temperley-Lieb, the Turaev-Viro construction, and skein modules*  
ANU Honours conference talk
- Oct 2013 *Torsors and the fundamental groupoid*  
Algebraic topology introductory talk
- Aug 2013 *An introduction to topological quantum field theory*  
ANU Honours conference talk
- Dec 2012 *Enumerating houses in cyclotomic fields*  
ANU Summer Research Scholarship presentation

## Achievements & Awards

- Jul 2014 Speaker, Australian Mathematical Sciences Student Conference
- Jun 2013 ANU Mathematical Sciences Institute Honours scholarship
- Nov 2012 ANU Summer Research Scholarship
- Jan 2011 University of Canterbury Peter Bryant prize for Pure Mathematics
- Jan 2010 University of Canterbury Dux Scholarship
- Jan 2010 Outstanding Scholar Award, New Zealand NCEA Scholarship exams

# Activities

## ACADEMIC

- Oct 2014 – Sept 2015 Postgraduate representative, University of Canterbury Mathematics Society. Organized algebraic geometry and set theory reading groups.
- 2013–2014 Active member of the ANU Mathematics Society, giving talks on various topics to mathematical and general audiences.
- 2010–2012 Member of the University of Canterbury Mathematics Society
- Jan 2010 New Zealand International Informatics Olympiad (IOI) selection camp.

## INTERESTS

- Nov 2016 – present I'm a member of **CorrelAid**, a student-run network of young data scientists.
- Jul 2014 I participated in the creation of a **website** modelling the effects of a proposed government policy to deregulate Australian university fees. This was **featured on the Guardian's datablog** and received a fair amount of media coverage.
- I am also a keen **traceur**!