

tslil clingman

6th year graduate at Johns Hopkins

Supervised by **Emily Riehl**

Interested in: *formal category theory, higher categories, and homotopy type theory.*

✉ tslil@jhu.edu

<https://tslil.xyz>

200 Krieger Hall, 3400 N. Charles St.
Baltimore, MD 21218

— Education —

■ Ongoing **PhD Candidate Math.**

JOHNS HOPKINS, EXPECTED GRADUATION 2022

Completed written qualifying exams and oral speciality exam

■ Spring 2020 **Programme Associate**

MATHEMATICAL SCIENCES RESEARCH INSTITUTE

Higher Categories and Categorification

■ 2018 **Masters Degree**

JOHNS HOPKINS, M.A. MATH., COURSEWORK

■ 2016-2018 **Principle Fulbright Scholar**

JOHNS HOPKINS

Selected & funded to pursue PhD in Math.

■ 2015 **Masters Degree**

UNIV. CAPE TOWN, M.SC. MATH., WITH DISTINCTION

Dissertation: "On the local and global properties of information manifolds"

■ 2014-2015 **Research Group**

UNIV. CAPE TOWN, INFORMATION GEOMETRY

Quantum Gravity and Strings Laboratory

■ 2014 **Honours Degree**

UNIV. CAPE TOWN, PURE MATH., FIRST CLASS

■ 2011-2013 **Bachelor of Science**

UNIV. CAPE TOWN, DEGREE WITH DISTINCTION

Majors: Pure Math., Applied Math., and Astrophysics, each with distinction

— Teaching Experience —

See my **website** for details, including my role as sole instructor, my role in administering the online homework system, and my work as a course development assistant and the products thereof.

■ 2018-2021 **Head T.A. & WeBWorK administrator**

JOHNS HOPKINS

Calculus III & ODE (recurred twice) and online homework system

■ Spring 2019 **Course development**

JOHNS HOPKINS

Introduction to Proofs, assisted Prof. Riehl in course development

■ Fall 2017 **Sole Instructor**

JOHNS HOPKINS

Introduction to Calculus

■ Jan. 2017 **Primary Instructor**

JOHNS HOPKINS

Interession Course: Recreational Math. for All

■ 2017, 18, 19 **DRP Mentor**

JOHNS HOPKINS

Mentored projects in: General Topology, Braid Group Representations, Category Theory, Homotopy Type Theory

■ Oct. 2014 **Invited Instructor**

UNIV. CAPE TOWN

Introduction to Group Theory

■ Cumulative **Teaching Assistant**

Real Analysis, Introductory Abstract Algebra, Linear Algebra, Differential Equations, Calculus Sequence, String Theory

— Award —

■ April 2021 **William Kelso Morrill Award**

EXCELLENCE IN MATHEMATICS

For love of teaching, love of mathematics, and concern for students, nominated by undergraduates & selected by the department.

— Papers —

■ **A common misinterpretation of Isbell's obstruction to monoidal strictification** ([arXiv 2106.03652](#))

the widely disseminated obstruction to strictifying the associator is shown to be under-specified as stated, and the truth is more subtle.

■ **Bi-representations and bi-initial objects are not so different** ([arXiv 2009.05545](#))

joint with L. Moser, on 2-categorical and double-categorical theorems characterising when pseudo-functors into Cat are representable, with applications to bi-adjunctions and 2-dimensional limits.

■ **2-limits and 2-terminal objects are too different** ([arXiv 2004.01313](#))

joint with L. Moser, on the failure of all theorems of the form "a 2-dimensional limit is a 2-dimensional terminal object in a 2-dimensional slice category of cones".

— Notable Service —

- 2019 **Primary organiser**
2019 CATEGORY THEORY OCTOBERFEST ([website](#)),
JOHNS HOPKINS
- 2018 **Chapter representative**
DIRECTED READING PROGRAM (DRP)
Represented the JHU DRP chapter at the Directed Reading Programme Network & Workshop, MIT
- 2017-2019 **Co-organiser**
DIRECTED READING PROGRAM (DRP), JOHNS HOPKINS
Individual pairing of undergraduates with graduates for independent studies ([website](#)). Mentor & co-organiser (2017-2019), primary organiser (2018-2019)
- 2015 **Organiser**
MATHS POSTGRAD. TEA PARTY, UNIV. CAPE TOWN
Founder of a biweekly meeting of graduates, comprising peer lectures and discussions over tea
- 2011-2015 **Various roles**
ALGORITHM CIRCLE – THEORETICAL COMP. SCI. CLUB, UNIV. CAPE TOWN
Free and open lectures, and competition prep. Lecturer (2011-2015), Vice-chairman (2012, 2014), Chairman (2013)
- 2011 & 2012 **Organiser**
HASKELL PROGRAMMING COURSE, UNIV. CAPE TOWN
Organised and gave a free and open Haskell language programming course

— Talks —

See my [website](#) for slides.

- 2020/10/14 **Category Theory Seminar**
JOHNS HOPKINS (ONLINE, OPEN TO PUBLIC)
2-lessons from Australian Category Theory: Mates and Doctrinal Adjunction
- 2020/09/11 **Category Theory Seminar**
JOHNS HOPKINS (ONLINE, OPEN TO PUBLIC)
BI DOUBLing categories we'll see/ MULTIPLE morphisms acting weakly/ Two out of the four/ Have laws rather poor/ But the last is coherent VIRTUALLY!
- 2019 Fall **Category Theory Seminar**
JOHNS HOPKINS
*Induction & construction: the pointless theory of localic topos;
Within and not without: an apology for internal languages (2 parts)*
- 2019/06/15 **Types 2019**
OSLO

Towards proof relevant category theory, as modelled by globular T-categories

- 2019/06/06 **HoTT-UF Project**
CAS OSLO
What is proof relevant category theory?
- 2019/04/02 **School and Workshop on Univalent Mathematics**
UNIVERSITY OF BIRMINGHAM
The univalence axiom, a brief & incomplete tour
- 2019/02/19 **Category Theory Seminar**
JOHNS HOPKINS
Polynomial functors, a degree of generality
- 2019/02/10 **Johns Hopkins Mathematics Tournament**
"Fractions: ratio of two integers or universal machine?", audience of high-school students
- 2018/11/30 **University Seminar**
GEORGE WASHINGTON UNIV.
Homotopy Type Theory, the confluence of logic and space
- 2018/11/08 **Category Theory Seminar**
JOHNS HOPKINS
What is an LCC?
- 2018/09/20 **Oral Speciality Exam**
JOHNS HOPKINS
Type Theory and Categories, the unbearable likeness of being
- 2017/12/05 **Graduate Topics Course**
JOHNS HOPKINS
'Rings Modules and Algebras in Infinite Loop Space Theory' at a glance
- 2017/11/15 **Graduate Topics Course**
JOHNS HOPKINS
What do we mean when we say spectra?
- 2017/11/30 **University Seminar**
GEORGE WASHINGTON UNIV.
An Intuitive Description of Toposes, Toposes as a Description of Intuitionism
- 2017/10/12 **Category Theory Seminar**
JOHNS HOPKINS
All good things must come to an end
- 2017/04/09 **Graduate Topics Course**
JOHNS HOPKINS
The Calculus of Fractions and Homotopy Theory
- 2016/12/12 **Category Theory Seminar**
JOHNS HOPKINS
A monad is just ... (with an eye to universal algebra)

— Conferences Attended —

- 2019 Category Theory Octoberfest, JHU
- 2019 Homotopy Type Theory, CMU
- 2019 Category Theory, Edinburgh
- 2019 Types, Oslo
- 2019 HoTT-UF Project, CAS Oslo
- 2019 Summer School on Higher Topos Theory and Univalent Foundations, Leeds
- 2019 School and Workshop on Univalent Mathematics, Birmingham
- 2018 Vladimir Voevodsky Memorial Conference, IAS
- 2018 Category Theory Octoberfest, CUNY
- 2018 Directed Reading Programme Network & Workshop, MIT
- 2017 Category Theory Octoberfest, CMU
- 2017 Category Theory 2017, UBC

— Competencies —

- Proficient in C, Haskell, and Rust, with experience in Agda, (x86 & AVR) Assembly, Common Lisp, Coq, Java, Javascript, $\text{\LaTeX}$, and Python
- English (fluent), Hebrew (intermediate), Afrikaans (intermediate)

— Personal Pursuits —

- [Electronics & 3D printing](#) Various projects leveraging micro-controllers and custom circuitry
- [Esoteric Programming Languages](#) Authored and implemented several languages
- [Fractal Art](#) Exploration of the media of iterated function systems, chaotic maps and attractors, and epicyclic generators
- [Digital Music](#) Leveraged trackers and other platforms to create a variety of compositions

References available upon request