

January 29, 2019

Why am I interested in the ACT2019 School and how it can benefit my research and career?

I am very happy to find that there exist conferences about category theory since during the last year I have been studying and applying it in my work. I am a fifth year Master's student in mathematics at the university of Helsinki and I have been working in the department of computer science since the last Summer. In the university of Helsinki the history of category theory is not very long and visiting abroad would give me a great opportunity to see how category theory is done elsewhere.

In my opinion category theory has proven to have a wide scale of applications. In the research, that we do in our research group, the problem has been how we can choose the right way of applying it. Objects, morphisms and functors can be chosen multiple ways and it is difficult to see which one is the best way. Especially, I would like to learn to see new possibilities and also limits of category theory. Although I can understand connections of category theory to the world in many cases, I do not think that it is easy to find fruitful connections. Instead of being abstract nonsense or describing trivial properties of the world, I would like to learn to use category theory in a way that tells us something new and meaningful about this world.

I am willing to pursue PhD after completing my Masters degree. Although doing research is challenging, I consider that I will find my career here. Besides, I have not yet visited any conference or academic school abroad so ACT2019 would be a great new experience for me. Last but not least, I would possibly find new friends who share similar interests in science and mathematics.

Sincerely,

Valter Uotila

Valter UOTILA

PERSONAL DATA

PLACE AND DATE OF BIRTH: Finland, 20 September 1994
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PHONE: +358 407450434
EMAIL: valter.uotila@helsinki.fi, valter.uotila@gmail.com
LINKEDIN: [Valter Uotila](#)

WORK EXPERIENCE

SINCE MAY 2018	Research Assistant at UNIVERSITY OF HELSINKI, Helsinki Working at Unified Database Management Systems -research group (UDBMS webpage).
NOV. 2017	Construction Team Worker at SLUSH MUSIC, Helsinki I volunteered in Slush Music event.
AUTUMN 2015, 2016, 2017	Tutor for Freshmen at UNIVERSITY OF HELSINKI, Helsinki I worked three times as a small group instructor for new students at the Department of Mathematics and Statistics.
OCCASIONALLY FOR YEARS	Farm Worker, Nummi and Artjärvi Worked in different kind of jobs, e.g. lumbering and farm works, at my parents' farms.
JULY 2013 – JUNE 2014	Finnish Military Service in SIGNAL CORPS, Riihimäki I got a Second Lieutenant training in Hamina and served as a leader of a platoon in the signal corps.

EDUCATION

2017 – 2019	currently studying Master's Degree in MATHEMATICS University of Helsinki , Helsinki
2014 – 2017	Bachelor's Degree in MATHEMATICS University of Helsinki , Helsinki Major: Mathematics Minors: Computer Science, Theoretical Physics and Finnish Literature Bachelor Thesis: Tychonoff's Theorem (in Finnish)
2010 – 2013	The Finnish Matriculation Examination Lohjan Yhteislyseon lukio , Lohja Subjects in the exams: Finnish, English, Swedish, Russian, Mathematics, Physics, Chemistry and Philosophy

COMPUTER SKILLS

Good Knowledge: \LaTeX , JAVA, Python, JavaScript, HTML/CSS
Intermediate Knowledge: SQL, Neo4j, Ruby, SML

LANGUAGES

FINNISH: Mother tongue, ENGLISH: Fluent, SWEDISH: Basics, RUSSIAN: Basics

January 30, 2019

To Whom it May Concern,

It is my pleasure to recommend Valter Uotila for admission to ACT2019 School. He has been working in our Unified Database Management Research group starting from May 2018. We studied category theory together in Introduction to Category Theory reading group.

Originally Valter has studied mathematics. He completed Bachelor's degree in mathematics. He accomplished the introduction courses of category theory with average grade being the highest. He has studied widely both theoretical computer sciences and pure mathematics.

ACT2019 School and its topics are very relevant to our research. Valter and his colleague have been developing a demo system to demonstrate how category theoretical ideas can be implemented and applied in multi-model databases and cross model query processing.

If I can be of any further assistance, or provide you with any further information, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Jiaheng Lu', with a stylized, overlapping loop at the end.

Jiaheng Lu

Associate Professor

Department of Computer Science

University of Helsinki, Finland

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**Uotila, Valter J E** <valter.uotila@helsinki.fi>

Tu

to me

To whom it may concern,

I am happy that you are going to arrange an interesting conference that I really would like part the other documents. My preference order of the projects is

1. Complexity classes, computation, and Turing categories,
2. Partial evaluations, the bar construction, and second-order stochastic dominance,
3. Toward a mathematical foundation for autopoiesis,
4. Formal and experimental methods to reason about dialogue and discourse using cate
5. Traversal optics and profunctors,
6. Simplifying quantum circuits using the ZX-calculus.

At the moment I think I will be able to come to Oxford. I can also search for possibilities of gett I did not quite understand but should I ask a letter of a recommendation from someone from n

No recent chats

[Start a new one](#)

Relevant Background and Current Studies

In Spring 2018 I applied for a summer job in Unified Database Management Systems -research group. At the time, the associate professor and the leader of the group, Jiaheng Lu, was searching a student to contribute to topic, where we would have applied category theory to multi-model databases. After all, at that time I started to do research about other topics.

By a strange stroke of fortune, in Summer 2018 my friends from the department of mathematics and statistics arranged Introduction to Category Theory -reading group. This was the first purely category theoretical activity for students in our university ever. Before the reading group I had only a vague touch to category theory from algebraic topology classes. Happily I started to attend the reading group with my professor and during the summer we learned a lot of about category theory. Before the meetings we read Emily Riehl's book *Category Theory in Context*. Regularly every week we had a meeting, where we discussed about exercises and generally about category theory. The reading group studies were worth of 10 credits that some of us accomplished after visiting exams.

The reading group is still meeting every second week and lately we have been discussing about 2-categories, Kan extensions and monads. After learning more about category theory we started the "applying category theory to multi-model databases" project again the last Autumn. My professor hired a doctoral student with strong skills in category theory and I have been working with him thinking different ways to apply category theory and coding a demo system, where we implement the ideas in simple cases.

While working in the research group I am writing my Master's thesis. My thesis topic is related to the first research problem about size bounds of queries in relational databases with arbitrary functional dependencies. Since my major is mathematics and the problem appeared to be computationally hard, I have shifted the problem to more mathematical direction.

Valter Uotila