# Sayantan Khan

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#### **EDUCATION**

#### Indian Institute of Science, Bangalore, India

2014 - 2018

Bachelor of Science, 3<sup>rd</sup> Year; Major: Mathematics

CGPA (overall) -7.4/8.0

CGPA (in Maths courses) -7.8/8.0

Maths courses taken

- Topology sequence (Topology I and Algebraic Topology I and II)
- Introduction to Homotopy Type Theory
- Topics in Analysis
- Real and Complex Analysis
- Multivariate Analysis
- Measure and Integration
- Ordinary Differential Equations
- Algebra I and II
- Linear Algebra
- Probability Theory and Statistics

#### PAST WORK

#### **Expository Articles**

- *Untangling loops in punctured*  $\mathbb{R}^2$ . Link to pdf.
- Weyl's equidistribution theorem for linear and quadratic polynomials. Link to pdf.
- Fourier analytic proof of Roth's theorem on 3-term arithmetic progressions. Link to pdf.

#### Seminars conducted

- *Languages defined by first order logic over an alphabet*: This presentation was a part of the student seminar in the Automata Theory and Computability course. Here are the slides.
- Slice and comma categories: I conducted a seminar on slice and comma categories, which looked at various common categorical constructions as terminal objects in appropriate categories. This was a part of the student seminar series for my algebra course.
- Morse Lemma and Morse theory: I outlined a proof of Morse lemma, and discussed some fundamental results of Morse theory, and how they fit into differential topology as a whole. This was a part of the student seminar series for my multivariable calculus course.

# AWARDS AND SCHOLARSHIPS

#### **AWARDS**

# • Third Prize: Madhava Mathematics Competition.

2015

Madhava Mathematics Competition is a national level competition for undergraduates studying mathematics in India.

# SCHOLARSHIPS

# KVPY SX scholar, 2014.

2014 - 2018

It is a national level scholarship exam for high school students interested in studying basic science in undergraduate level. It is conducted by Indian Institute of Science and is funded by Department of Science and Technology, Govt. of India.

# CAMPUS ACTIVITIES

## Quarks, IISc Undergraduate Annual Magazine

2015 - 2016

# Editor-in-Chief

Quarks is a magazine published by the IISc undergraduate community annually. It consists of essays, stories, poetry, and other forms of creative writing contributed by the student body as well as the professors. It also tries to raise social issues concerning the students and the universities, issues that aren't raised in other forums.

#### Samasya, IISc Undergraduate Mathematics Club

2015 - 2016

# Coordinator

The club's activities involve holding problem solving sessions, and occasional talks by members on an interesting theorem, or general problem solving strategies.

# LANGUAGES

#### HUMAN

English, Bengali, Hindi

# COMPUTER

Python, Haskell, Scala, Javascript, C, LATEX

# REFERENCES

# ■ Dr. Siddhartha Gadgil

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 Department of Mathematics,
 Indian Institute of Science, Bangalore subhojoy@math.iisc.ernet.in