

Henrique K. Miyamoto

MASTER'S STUDENT | APPLIED MATHEMATICS & ELECTRICAL ENGINEERING

R. Sérgio Buarque de Holanda, 651, 13083-859, Campinas, SP, Brazil

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Education

M.S. student in Applied Mathematics

INSTITUTE OF MATHEMATICS, STATISTICS AND SCIENTIFIC COMPUTING (IMECC), UNIVERSITY OF CAMPINAS (UNICAMP)

Advisor: Prof. Sueli I. R. Costa

Campinas, Brazil

2021–present

Diplôme d'Ingénieur

CENTRALESUPÉLEC, PARIS-SACLAY UNIVERSITY

Major: Applied Mathematics (Statistics, Signals and Data)

Gif-sur-Yvette, France

2018–2021

B.S. in Electrical Engineering

SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING (FEEC), UNIVERSITY OF CAMPINAS (UNICAMP)

Class rank: 1/74, GPA: 0.9196/1.0

Campinas, Brazil

2015–2021

Experience

School of Electrical and Computer Engineering (FEEC), Unicamp

GRADUATE TEACHING ASSISTANT

- Course: *EE881–Principles of Communications I*.
- Supervisor: Prof. José Cândido S. Santos Filho.

Campinas, Brazil

Mar. 2022–present

School of Electrical and Computer Engineering (FEEC), Unicamp

UNDERGRADUATE TEACHING ASSISTANT

- Course: *EE881–Principles of Communications I*.
- Supervisor: Prof. José Cândido S. Santos Filho.

Campinas, Brazil

Mar. 2021–Jul. 2021

Mathematical and Algorithmic Sciences Lab, Huawei Technologies

RESEARCH INTERN

- Topic: *Logic transfer learning between neural networks*.
- Supervisor: Dr. Ingmar Land.

Boulogne-Billancourt, France

Apr. 2020–Oct. 2020

Laboratory of Signals and Systems (L2S), CentraleSupélec

STUDENT RESEARCHER

- Project: *Connections between data compression and Bayesian inference*.
- Supervisor: Prof. Sheng Yang.

Gif-sur-Yvette, France

Jul. 2019–Apr. 2020

Institute of Mathematics, Statistics and Scientific Computing (IMECC), Unicamp

STUDENT RESEARCHER

- Project: *Construction of spherical codes by Hopf foliations*.
- Supervisors: Prof. Henrique N. Sá Earp and Prof. Sueli I. R. Costa.

Campinas, Brazil

Apr. 2016–Aug. 2018

Interests

Information theory and coding, communication theory.

Publications

JOURNAL PAPERS

H. K. Miyamoto and S. Yang, “Context-tree-based lossy compression and its application to CSI representation”, **IEEE Transactions on Communications**, early access, 2022. doi: 10.1109/TCOMM.2022.3173002.

H. K. Miyamoto, S. I. R. Costa and H. N. Sá Earp, “Constructive spherical codes by Hopf foliations”, **IEEE Transactions on Information Theory**, vol. 67, no. 12, pp. 7925–7939, Dec. 2021. doi: 10.1109/TIT.2021.3114094.

CONFERENCE PAPERS

H. K. Miyamoto and S. Yang, “A CSI compression scheme using context trees”, **International Zurich Seminar on Information and Communication (IZS)**, pp. 24–28, Zurich, 2022. doi: 10.3929/ethz-b-000535273.

H. K. Miyamoto, H. N. Sá Earp and S. I. R. Costa, “Constructive spherical codes in 2^k dimensions”, **IEEE International Symposium on Information Theory (ISIT)**, pp. 1612–1616, Paris, 2019. doi: 10.1109/ISIT.2019.8849464.

H. K. Miyamoto, H. N. Sá Earp, and S. I. R. Costa, “Construção de códigos esféricos usando a fibração de Hopf”, **Jornada Nacional de Iniciação Científica (JNIC), 70ª Reunião Anual da SBPC**, Maceió, 2018. ISSN: 2176-1221. (in Portuguese).

H. K. Miyamoto, H. N. Sá Earp, and S. I. R. Costa, “Construction of spherical codes using the Hopf fibration”, **XXV Congresso de Iniciação Científica da Unicamp**, Campinas, 2017. doi: 10.19146/pibic-2017-78809.

Presentations & Talks

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| 2019 | IEEE International Symposium on Information Theory (ISIT) , oral presentation. | <i>Paris, France</i> |
| 2018 | International Congress of Mathematicians (ICM) , oral presentation. | <i>R. de Janeiro, Brazil</i> |
| 2018 | Jornada Nacional de Iniciação Científica (JNIC/SPBC) , poster presentation. | <i>Maceió, Brazil</i> |
| 2018 | Latin American Week on Coding and Information (LAWCI) , poster presentation. | <i>Campinas, Brazil</i> |
| 2018 | DivulgaMat Seminars (IMECC/Unicamp) , oral presentation. | <i>Campinas, Brazil</i> |
| 2017 | Jornada de Matemática, Matemática Aplicada e Educação Matemática (J3M/UFPR) , oral and poster presentation. | <i>Curitiba, Brazil</i> |
| 2017 | XXV Congresso de Iniciação Científica da Unicamp , poster presentation. | <i>Campinas, Brazil</i> |

Awards

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| 2018 | Merit Award , National Journey of Scientific Initiation (JNIC), SBPC. | <i>Maceió, Brazil</i> |
| 2018 | 2nd place , Scientific Initiation Prize “Beatriz Neves”, SBMAC. | <i>Campinas, Brazil</i> |
| 2017 | Academic Excellence in Undergraduate Work , Journey of Mathematics, Applied Mathematics and Mathematical Education (J3M), category Geometry and Topology, PET Matemática/UFPR. | <i>Curitiba, Brazil</i> |
| 2017 | Scientific Merit , XXV Unicamp Congress of Scientific Initiation, PRP/Unicamp. | <i>Campinas, Brazil</i> |
| 2015 | Merit Award , for the essay produced in Unicamp entrance examination, COMVEST/Unicamp. | <i>Campinas, Brazil</i> |

Grants & Scholarships

Master’s Degree Scholarship

SÃO PAULO RESEARCH FOUNDATION (FAPESP)

- Project *Information Geometry: applications to signal processing and machine learning* (2021/04516-8) at IMECC, Unicamp.

Brazil
2021–present

Eiffel Excellence Scholarship

FRENCH MINISTRY OF EUROPE AND FOREIGN AFFAIRS

- Double-degree program at CentraleSupélec, Paris-Saclay University.

France
2018–2020

Scientific Initiation Scholarship

SÃO PAULO RESEARCH FOUNDATION (FAPESP)

- Project *Construction of spherical codes using the Hopf fibration* (2016/05126-0) at IMECC, Unicamp.

Brazil
2016–2018

Junior Scientific Initiation Scholarship

BRAZILIAN NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT (CNPQ)

- Project *Digital Mosaic* at CIC Robotics, Colégio Cândido Portinari.

Brazil
2013–2013

Membership

Institute of Electrical and Electronics Engineers (IEEE)

GRADUATE STUDENT MEMBER

- IEEE Information Theory Society
- IEEE Communications Society
- IEEE Signal Processing Society

USA
2018–present

Languages

- Portuguese** native.
- English** advanced: Cambridge CAE (2014), TOEFL ITP 660/677 (2019).
- French** advanced: TFI 975/990 (2019).
- Spanish** intermediate.
- Japanese** elementary: JLPT N4 (2014).

Skills

Programming Python, MATLAB, Wolfram Mathematica, C/C++, R.

Typesetting \LaTeX .

Extracurricular activities

Department of Communications (DECOM), FEEC, Unicamp

Campinas, Brazil

STUDENT REPRESENTATIVE

2018—2019

- Student representative at department meetings.

Bernardo Sayão Academic Centre (CABS), Unicamp

Campinas, Brazil

MEMBER

2017—2018

- CABS is the student entity representing the Electrical Engineering students with Unicamp.
- Responsible for editing the journal *Ponto de Vista*.

Group of Studies in Robotics (GER), Unicamp

Campinas, Brazil

MEMBER AND COORDINATOR

2015—2018

- GER is an extracurricular group at Unicamp focused on autonomous robotics.
- Participated in the autonomous soccer project for IEEE-VSSS category, and coordinated this project in 2016.
- Administrative positions: financial coordinator (2016), general-coordinator (2017) and communication coordinator (2018).
- Participated in *Latin American Robotics Competition (LARC)*, IEEE-VSSS in 2013 (Uberlândia, Brazil) and 2017 (Curitiba, Brazil).

CIC Robotics, Colégio Cândido Portinari

Salvador, Brazil

MEMBER

2012—2014

- CIC Robotics is a robotics scientific club at Colégio Cândido Portinari.
- Participated in autonomous soccer project for RoboCup Junior Soccer categories.
- Participated in *Latin American Robotics Competition (LARC)*, RoboCup Junior Soccer (Fortaleza, Brazil, 2012), won 2nd place in *Brazilian Robotics Competition (CBR)*, RoboCup Junior Soccer (Fortaleza, Brazil, 2013), and gold medal in *RoboGames*, LEGO Soccer 2:2 (San Mateo, USA, 2013).
- Poster presentation at *Robotics National Fair (MNR)*, in 2012 (Fortaleza, Brazil) and 2013 (Fortaleza, Brazil).

Last updated: May 6, 2022