



## ///// EDUCATION

### Purdue University, West Lafayette, IN

aug '25 ► *present* Ph.D. Electrical & Computer Engineering\*  
FIRST YEAR

aug '24 ► *jul '25* Ph.D. Chemical Engineering  
TRANSFERRED *with* David E. Bernal Neira

### Federal University of Rio de Janeiro, Brazil

jul '22 ► *present* M.Sc. Computer Science & Systems Engineering\*  
GPA .96 ⓘ *with* Nelson Maculan

apr '16 ► *apr '23* B.Sc. Computer & Information Engineering  
GPA .79 ⓘ *with* Priscila Machado Vieira Lima

feb '18 ► *apr '23* B.Sc. Mathematics  
DOUBLE MAJOR

## ///// EXPERIENCE

### Microsoft Research, Cambridge, UK

Julia Git Mathematical Programming Analog Optimization Open-Source

apr '24 ► *jul '24* Research Intern  
FULL-TIME *with* Christos Gkantsidis & Kirill Kalinin

### PSR Energy Consulting & Analytics, Rio de Janeiro, Brazil

Julia Python GIS Git Operations Research Power Systems Analysis  
Stochastic Optimization Machine Learning Quantum Optimization Open-Source

mar '23 ► *mar '24* Research & Development Analyst  
FULL-TIME *with* Joaquim Dias Garcia & Guilherme Bodin

nov '21 ► *feb '23* Research & Development Intern  
PART-TIME *with* Joaquim Dias Garcia

### Purdue University, West Lafayette, IN

Julia Git Disjunctive Programming Quantum Optimization Open-Source

aug '23 ► *dec '23* Visiting Scholar  
FULL-TIME *with* David E. Bernal Neira

## ///// SELECTED PUBLICATIONS

jun '24 **Disjunctive Programming meets QUBO**  
CACE 1<sup>ST</sup> *with* Pedro Ripper, Joshua Pulsipher, Joaquim Dias Garcia, Nelson Maculan & David E. Bernal Neira

sep '23 **QUBO.jl: A Julia Ecosystem for Quadratic Unconstrained Binary Optimization**  
ARXIV 1<sup>ST</sup> *with* Pedro Ripper, Tiago Andrade, Joaquim Dias Garcia, Nelson Maculan & David E. Bernal Neira

aug '22 **Computation for Architecture, hybrid visual and textual language: Research developments and considerations about the implementation of structural imperative and object-oriented paradigms**  
IJAC 2<sup>ND</sup> *with* Gonçalo Castro Henriques, Victor de Luca Silva, Luca Rédua Bispo & João Victor Fraga

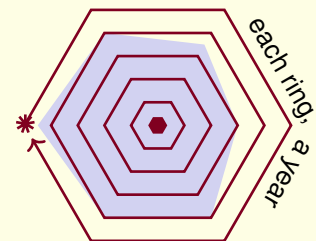
## CONTACT /

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🌐 pedro.ελ

## LANGUAGES /

🇧🇷 native  
🇬🇧 fluent  
🇪🇸 fluent  
🇩🇪 basic

## TREE RINGS /



power systems  
machine learning  
\* optimization  
software engineering  
quantum computing  
architecture



\* ongoing ⓘ incoming



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- aug '25 >> present . PhD Electrical & Computer Engineering\*  
first year .
- aug '24 >> jul '25 . PhD Chemical Engineering  
transferred . with David E. Bernal Neira

### Federal University of Rio de Janeiro, Brazil

- jul '22 >> present . MSc Computer Science & Systems Engineering\*  
gpa .96 . with Nelson Maculan
- apr '16 >> apr '23 . BSc Computer & Information Engineering  
gpa .79 . with Priscila Machado Vieira Lima
- feb '18 >> apr '23 . BSc Mathematics  
double major .

## \*\*\* EXPERIENCE

### Microsoft Research, Cambridge, UK

- Julia Git Mathematical Programming Analog Optimization Open-Source
- apr '24 >> jul '24 . Research Intern  
full-time . with Christos Gkantsidis & Kirill Kalinin

### PSR Energy Consulting & Analytics, Rio de Janeiro, Brazil

- Julia Python GIS Git Operations Research Power Systems Analysis  
Stochastic Optimization Machine Learning Quantum Optimization Open-Source
- mar '23 >> mar '24 . Research & Development Analyst  
full-time . with Joaquim Dias Garcia & Guilherme Bodin
- nov '21 >> feb '23 . Research & Development Intern  
part-time . with Joaquim Dias Garcia

### Purdue University, West Lafayette, IN

- Julia Git Disjunctive Programming Quantum Optimization Open-Source
- aug '23 >> dec '23 . Visiting Scholar  
full-time . with David E. Bernal Neira

### Fiocruz, Rio de Janeiro, Brazil

- SQL PHP Javascript HTML Public Healthcare Clinical Research
- feb '18 >> jul '19 . Undergraduate Research Intern  
part-time . with Lúcia Monteiro

### \*\*\* PUBLICATIONS

- aug '25 . Quantum Optimization Benchmarking Library - The Intractable Decathlon
  - arxiv . *with* Thorsten Koch, David E. Bernal Neira, Anurag Ramesh, Stefan Woerner, Christa Zoufal *and many others*
- jun '24 . Disjunctive Programming meets QUBO
  - cace . 1st *with* Pedro Ripper, Joshua Pulsipher, Joaquim Dias Garcia, Nelson Maculan & David E. Bernal Neira
- sep '23 . QUBO.jl: A Julia Ecosystem for Quadratic Unconstrained Binary Optimization
  - arxiv . 1st *with* Pedro Ripper, Tiago Andrade, Joaquim Dias Garcia, Nelson Maculan & David E. Bernal Neira
- aug '22 . Computation for Architecture, hybrid visual and textual language: Research developments and considerations about the implementation of structural imperative and object-oriented paradigms
  - ijac . 2nd *with* Gonçalo Castro Henriques, Victor de Luca Silva, Luca Rédua Bispo & João Victor Fraga
- oct '20 . Detection of elementary particles with the WiSARD n-tuple classifier
  - esann . 1st *with* Massimo De Gregorio, Felipe França, Priscila Lima

### \*\*\* CONFERENCES

- jul '25 . JuliaCon @ Pittsburgh, PA
  - talk . QUBO.jl: An UI/UX Perspective
- mar '25 . INFORMS Computing Society @ Toronto, ON
  - talk . Implementing non-standard automatic QUBO reformulation in JuMP
- dec '24 . NeurIPS @ Vancouver, BC
  - poster . Federated Learning with Quantum Computing and Fully Homomorphic Encryption
- jul '24 . ISMP @ Montreal, QC
  - talk . QUBO.jl: A tale of implementation and benchmarking of a Quantum Optimization Ecosystem in Julia
- jul '24 . JuMP-dev @ Montreal, QC
  - talk . QUBO.jl: A Julia ecosystem for Quadratic Unconstrained Binary Optimization
- jun '24 . ESCAPE + PSE @ Florence, Italy
  - talk . Disjunctive Programming meets QUBO
- jul '23 . IFORS @ Santiago, Chile
  - talk . JuMP to QUBO Automatic Reformulation
- oct '22 . QC & OR @ Toronto, ON
  - poster . JuMP to QUBO Automatic Reformulation

### \*\*\* SCHOLARSHIPS & AWARDS

- fall '20 . UFRJ Research Expo  
UFRJ . *Best Work*: Elementary particle detection with Weightless Neural Networks.
- fall '18 . UFRJ Research Expo  
UFRJ . *Best Work*: Reducing Inequalities with training workshops for the Brazilian Mathematics Olympiad for Public Schools

### \*\*\* GROUPS & LEADERSHIP

- dec '24 >> jul '25 . Chemical Engineering GS0  
Purdue . Culture Chair
- jan '20 >> dec '21 . Computer Engineering Student Government  
POLI/UFRJ . Director
- oct '19 >> mar '24 . UFRJ Analytica: Data Science Competition Team  
UFRJ . Co-Founder, Team Mentor & Consultant Member

### \*\*\* TEACHING

- spring '23 . Weightless Neural Networks  
PESC/UFRJ . TA (GRAD)
- fall '22 . Optimization for Data Science  
IM/UFRJ . TA & Lecturer (GRAD)
- spring '22 . Mathematical Optimization  
POLI/UFRJ . TA (U.G.)
- fall '20 . Computer Graphics  
PESC/UFRJ . TA (GRAD)
- spring '20 . Algorithms & Data Structures  
POLI/UFRJ . TA (U.G.)
- fall '22  
fall '21 . Programming for Architecture  
FAU/UFRJ . TA & Lecturer (U.G.)
- spring '21  
fall '20 . Calculus  
IM/UFRJ . TA (U.G.)
- spring '19 . Programming Languages  
POLI/UFRJ . TA (U.G.)
- fall '19  
spring '19  
fall '18
- spring '18 . Programming I & II  
POLI/UFRJ . TA (U.G.)
- spring '18 . Math Olympiad Preparation  
IM/UFRJ . TA (K12)