

# EZZAT ELOKDA



## PERSONAL DATA

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CITIZENSHIP | DATE OF BIRTH: Egyptian/Canadian | 4 November 1991  
ADDRESS: Rossbergstrasse 28, 8002 Zurich, Switzerland  
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## ACADEMIC TIMELINE

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Present	Doctrol Student, <b>ETH Zurich</b>
OCT 2021	TOPIC: "A self-contained karma economy for fair & efficient resource sharing" SUPERVISION: Dr. S. BOLOGNANI, Prof. Dr. F. DÖRFLER ( <i>IfA</i> ), Dr. A. CENSI, Prof. Dr. E. FRAZZOLI ( <i>IDSC</i> )
MAY 2020	M.Sc. in ROBOTICS, SYSTEMS & CONTROL, <b>ETH Zurich</b>
SEP 2018	GPA: 5.93/6.00   Awarded <b>ETH Silver Medal</b>
JUN 2014	B.ASc. in MECHATRONICS ENGINEERING, <b>University of Waterloo</b>
SEP 2009	GPA: 90.36/100.00   Term ranking: 1 (3A), 3 (1B), 4 (3B)   Distinction, Honours

## WORK EXPERIENCE

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JUL 2018	Electrical & Controls Designer at HAWBOLDT INDUSTRIES   <a href="http://hawboldtind.com">hawboldtind.com</a>
DEC 2015	<i>Only non-mechanical engineer in company</i> HIGHLIGHT PROJECT: <a href="#">Active Heave Compensation</a> for Launch & Recovery Systems <i>Keywords:</i> Winch control, PID control, Cascaded control, Control panel design, Schematics, ABB VFD, Siemens PLC/HMI, Motion Reference Unit (MRU), AutoCAD Electrical, Product development, Bench-testing, Customer-testing
DEC 2015	Systems Designer at GRANTEK SYSTEMS INTEGRATION   <a href="http://grantek.com">grantek.com</a>
JUL 2014	<i>Industrial &amp; Process Automation Specialist</i> <i>Keywords:</i> Process control, PID control, PLC/HMI/SCADA (Rockwell, Schneider), Industrial safety, On-site troubleshooting, On-site commissioning, Business travel
Varying 4-month Internships	Product Development Engineering Student at BENDIX CANADA   <a href="http://bendix.com">bendix.com</a> Manufacturing Engineering Student at TOYOTA CANADA   <a href="http://tmmc.ca">tmmc.ca</a> Medical Development Student at CHRISTIE DIGITAL   <a href="http://christiedigital.com">christiedigital.com</a> Development Software Assistant at CAE ELECTRONICS   <a href="http://cae.com">cae.com</a> Programming Analyst at PRATT & WHITNEY CANADA   <a href="http://pwc.ca">pwc.ca</a>

## TEACHING

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Present	Instructor, <a href="#">QUAD-ROTORS: CONTROL &amp; ESTIMATION</a>
FEB 2022	<i>Practical course on modelling and control of real-world Crazyflie quad-rotors</i> Student evaluation: 100% 'overall satisfaction'
Present	Teaching Assistant, <a href="#">CONTROL SYSTEMS</a>
FEB 2021	<i>Instructed tutorials, designed hands-on quad-rotors exercise &amp; final exam tasks</i>
FEB 2022	Teaching Assistant, <a href="#">GAME THEORY &amp; CONTROL</a>
	<i>Instructed tutorials, designed interactive assignment on karma games</i>

## JOURNAL PUBLICATIONS

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- APR 2023 | **E. Elokda**, S. Bolognani, A. Censi, F. Dörfler, and E. Frazzoli,  
“A self-contained karma economy for the dynamic allocation of common resources,”  
[DYNAMIC GAMES & APPLICATIONS](#). doi: [10.1007/s13235-023-00503-0](#)
- SEP 2023 | **E. Elokda**, C. Cenedese, K. Zhang, A. Censi, J. Lygeros, E. Frazzoli, and F. Dörfler,  
“CARMA: Fair and efficient bottleneck congestion management via non-tradable karma,”  
[TRANSPORTATION SCIENCE](#) (submitted). doi: [arXiv:2208.07113](#)
- OCT 2023 | A. R. Hota, U. Maitra, **E. Elokda**, S. Bolognani,  
“Learning to mitigate epidemic risks: A dynamic population game approach,”  
[DYNAMIC GAMES & APPLICATIONS](#). doi: [10.1007/s13235-023-00529-4](#)
- DEC 2021 | **E. Elokda**, J. Coulson, P. N. Beuchat, J. Lygeros, and F. Dörfler,  
“Data-enabled predictive control for quadcopters,”  
[INTERNATIONAL JOURNAL OF ROBUST & NONLINEAR CONTROL](#). doi: [10.1002/rnc.5686](#)

## CONFERENCES & WORKSHOPS

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- Singapore  
APR 2023 | “Dynamic population games for the modeling of complex socio-economic systems,”  
Plenary talk, [NUS/IMS GAMES, LEARNING & NETWORKS WORKSHOP](#) | [Video](#)
- Singapore  
DEC 2023 | **E. Elokda**, C. Cenedese, K. Zhang, A. Censi, S. Bolognani, and E. Frazzoli,  
“A dynamic population game model of non-monetary bottleneck congestion  
management under elastic demand using karma,”  
[CDC2023](#).  
Invited: “Learning and control for accessible, safe, and equitable transportation”
- Cyprus  
JUN 2023 | **E. Elokda**, C. Cenedese, K. Zhang, A. Censi, J. Lygeros, and E. Frazzoli,  
“Karma priority lanes for fair and efficient bottleneck congestion management,”  
[MED2023](#). doi: [10.1109/MED59994.2023.10185731](#)  
Invited: “Ubiquitous automation and control for congested transportation systems”
- Washington  
JAN 2023 | **E. Elokda**, C. Cenedese, K. Zhang, J. Lygeros, and F. Dörfler,  
“CARMA: Fair and efficient bottleneck congestion management using karma,”  
[TRB ANNUAL MEETING 2023](#).
- Austin  
DEC 2021 | **E. Elokda**, C. Cenedese, K. Zhang, A. Censi, J. Lygeros, and E. Frazzoli,  
“A dynamic population model of strategic interaction and migration under epidemic risk,”  
[CDC2021](#). doi: [10.1109/CDC45484.2021.9683739](#)  
Invited: “Modeling, prediction, and control of epidemic processes”

## OUTREACH

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- NOV 2023 | “Just Good CARMA: How we’re driving fair and efficient mobility.”  
[Blog post](#) | [YouTube video](#)  
[NCCR AUTOMATION](#)
- NOV 2023 | ORGANIZER, [IfA Open House](#)
- NOV 2022 | *Hosting 200+ Bachelor/Master students to showcase IfA research activities*