

Big Data for Networking

Nelson L. S. da Fonseca

IEEE ComSoc Summer School

Albuquerque, July 17-21, 2017

Course Objective

To introduce the Big Data ecosystem and research challenges with emphasis on current networking technology.

Outline

- What are Big Data?
- Big Data Processing
- Cloud Computing
- Fog Computing
- Data Centers
- Virtualization
- Network Virtualization

Course Web Page

<http://www.ic.unicamp.br/~nfonseca/comsoc-school>

Networking for Big Data

Home

Course Notes

Lab Exercise

Nelson Fonseca

Prospective Students & Researchers

MARKETS
GROWTH
WELCOME TO THE COURSE ON  NETWORKING FOR BIG DATA

3rd IEEE ComSoc Summer School - July 17-20, 2017 - Albuquerque, NM, USA.

Nelson L. S. da Fonseca, Institute of Computing, State University of Campinas, Brazil

Read More

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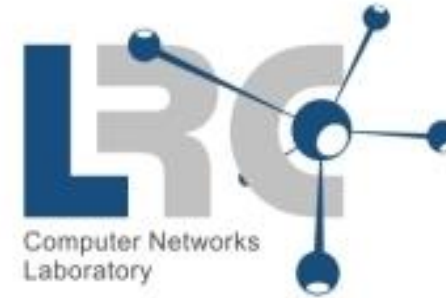
Nelson Fonseca - Bio

Nelson L. S. da Fonseca received his Ph.D. degree from the University of Southern California. He is a full professor at the Institute of Computing of the State University of Campinas, Brazil. He has published 350+ papers and supervised 60+ graduate students. He is a ComSoc Distinguished Lecturer. Nelson has over 10 years of experience as a Technical Committee officer, and has served as Chair of two Technical Committees: the Multimedia Communications TC and the Communications Systems Integration and Modeling TC. For his exemplary services, he received the Distinguished Service Award from these two TCs. Currently, Nelson serves as Vice President-Publications. He has also served as VP-Members Relations, Director for Conference Development, Director of Latin America Region, and Director of Online Services. He is a past EiC of *IEEE Communications Surveys & Tutorials*. He is a senior editor for *IEEE Communications Surveys & Tutorials* and a senior editor for *IEEE Communications Magazine*. He is the recipient of the 2012 IEEE Communications Society Joseph LoCicero Award for Exemplary Service to Publications, the Medal of the Chancellor of the University of Pisa, and the Elsevier Computer Network Journal Editor of Year 2001 award. He created the ComSoc Student Competition Program, IEEE LATINCOM, the series of Multimedia Communications Symposia at GLOBECOM/ICC, and the NFV-SDN conference.

Nelson Fonseca

- Supervised over 60 MSc and Ph.D. thesis
- Published over 350 peer reviewed papers
- Current research topic:
 - M2M over LTE
 - 5G Backhaul
 - Spatial Division Multiplexing Optical Networks
 - Network Function Virtualization
 - Cloud and fog computing
 - Big Data

Computer Network Lab (LRC)



- <http://www.lrc.ic.unicamp.br>
- Currently, over 40 MSc and PhD students
- All network layers except physical layer
- Over 120 thesis and dissertations supervised;
- Coordinated several reserach networks at national level;
- Funded International Cooperation:
- Published over 600 technical papers.



Campinas, Unicamp, and the Institute of Computing

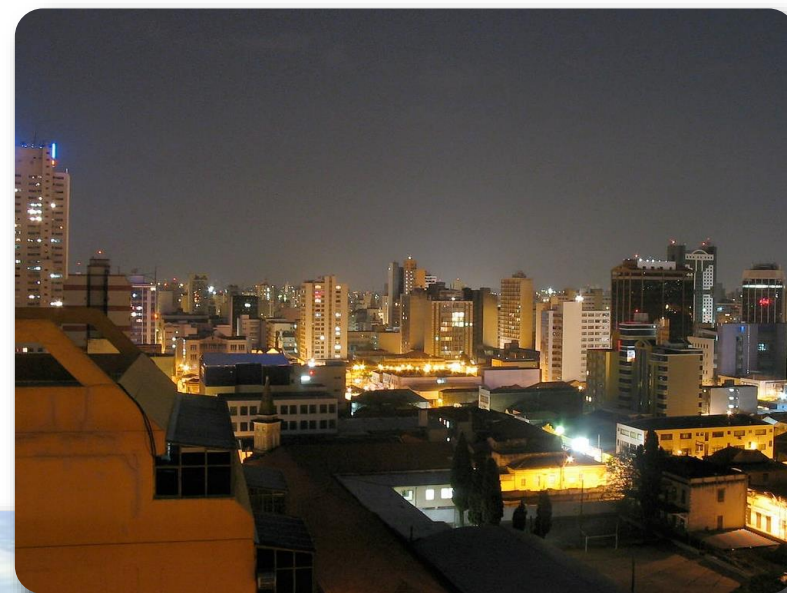
Where are we?



Where are we?



Campinas



“The Brazilian Silicon Valley”



i nstruct .com

Infosoftware
consulting

MicroForma
Informática



Klais

PEOPLE.
Educação Profissional e Tecnológica



Green Technologies

Ci&T software enabling the e-world

xtal
fibras ópticas



ELETROVENTO
GERADORES EÓLICOS

ICARO
TECHNOLOGIES

SAAT Informática



TECH
CIROM
Analytical Instruments

MATERA
systems
core business solutions

MP MACRO PAINEL
INDUSTRIA E COMERCIO LTDA

KOM Lux
FIBRAS ÓPTICAS

OptoLink

Well Done
Padtec
Optical Components and Systems

FOTÔNICA
TECNOLOGIA ÓPTICA

TERMOQUIP

uni laser

AsGa

conceptia
alellyx
Applied Genomics

ProClone

BIOWARE

mondo

OPTRON
micromecânica óptica ltda.

KAIZEN

GRIAULE
Fingerprint Recognition

compera

Scylla
BICINFORMÁTICA

cyclades

Bioluz



EcoSigma POSITRON

alibra

IN³
Technologies S.A.

ecobrisa

Vacuo-Flex
tecnologias refletivas

UniSoma

KAIZEN

brain
WEB

Elemed

SOFT
WAY

Soluções e Software para
Comércio Exterior

KAFFA
Software Consulting

Reckon
Engenharia de Sistemas

SIRA
Solutions

NOVADATA
Computadores e Soluções

Unicamp



1,900+ Faculty



8,000+ Staff



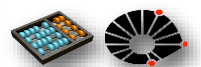
36,000+ Students
| **17,000+** Grad
| **19,000+** Undergrad



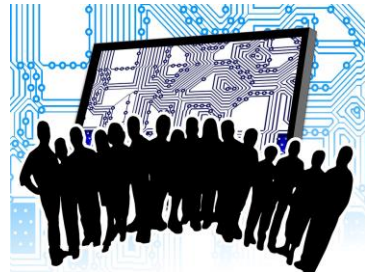
#1 University in
Patent Filings
#1 pub/professor rate



Annual Budget
~0.9 Billion USD



The Institute of Computing



2

Undergraduate Courses
Computer Science &
Computer Engineering



Almost 50-year old
Computer Science Course



2

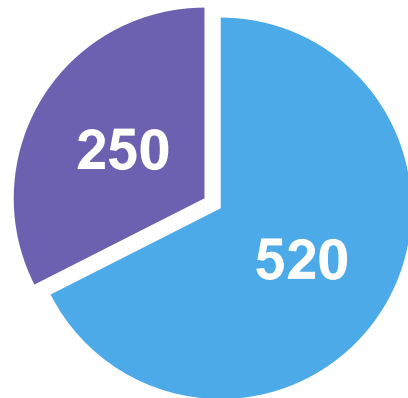
Graduate Courses
Masters and Ph.D.
in Computer Science



Strong
International Collaboration

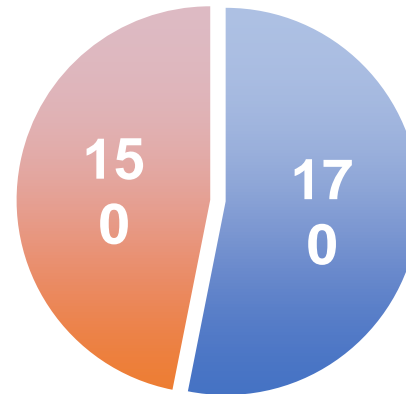
Enrollment Numbers

■ Computer Engineering
■ Computer Science



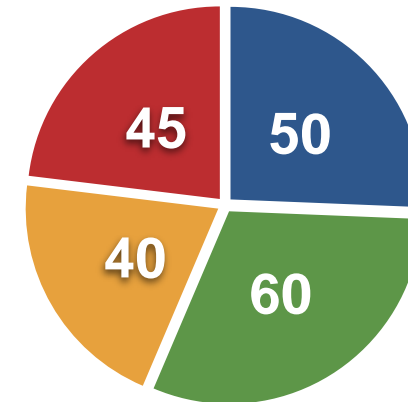
Undergraduate Studies

■ M.Sc. ■ Ph.D.

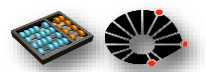


Graduate Studies

■ Complex Data ■ Software Eng.
■ Networks ■ IoT

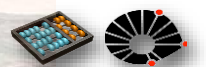


Continued Education

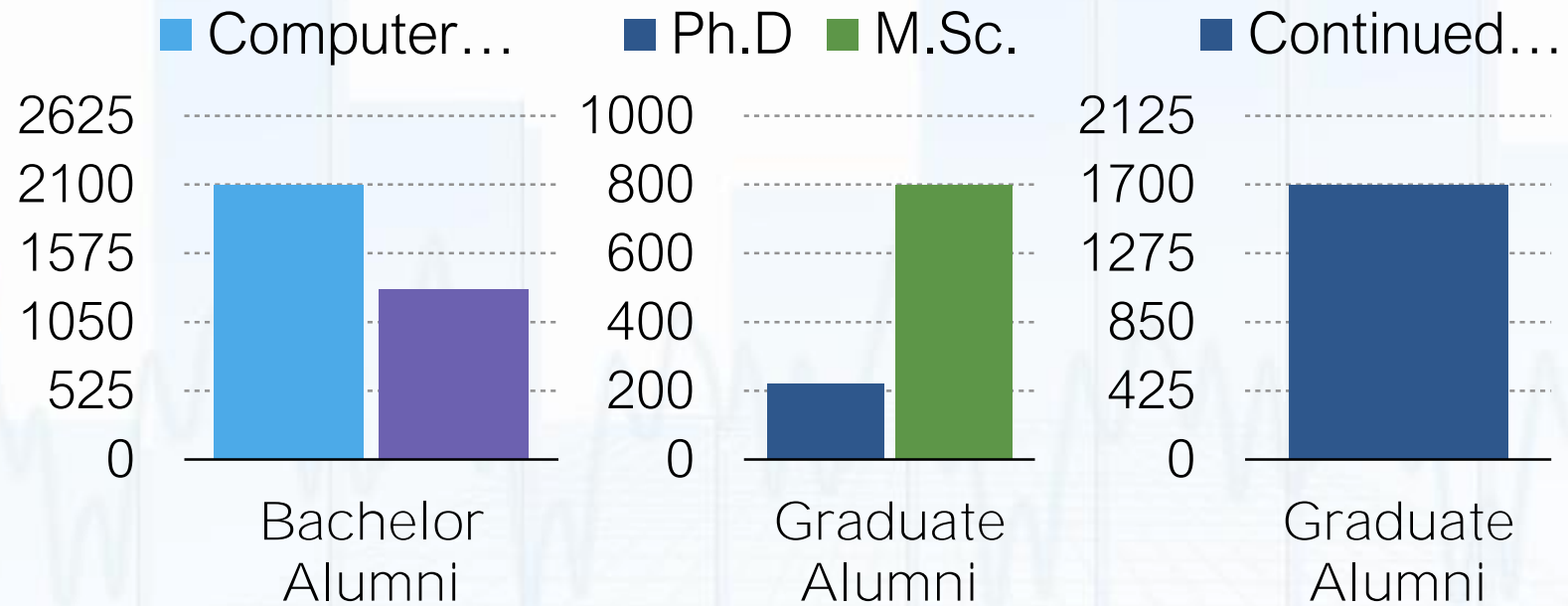


The Institute of Computing

- Data Science & Engineering
- Software Engineering
- Data Mining
- Human-Computer Interaction
- Algorithms & Graph Theory
- Combinatorics & Optimization
- Computational Biology
- Hardware-Software Codesign
- Computer Architecture
- VLSI Design
- Compilers
- Parallel Computing
- Artificial Intelligence
- Machine Learning
- Big Data
- Wearable Computing
- Distributed Systems
- Computer Networks
- Cloud Computing
- Sensor Networks
- Natural Language Processing
- Cryptograph
- Computer Security
- Computer Graphics
- Computer Vision
- Digital Forensics
- Information Retrieval
- Image Processing
- e-Science
- Robotics

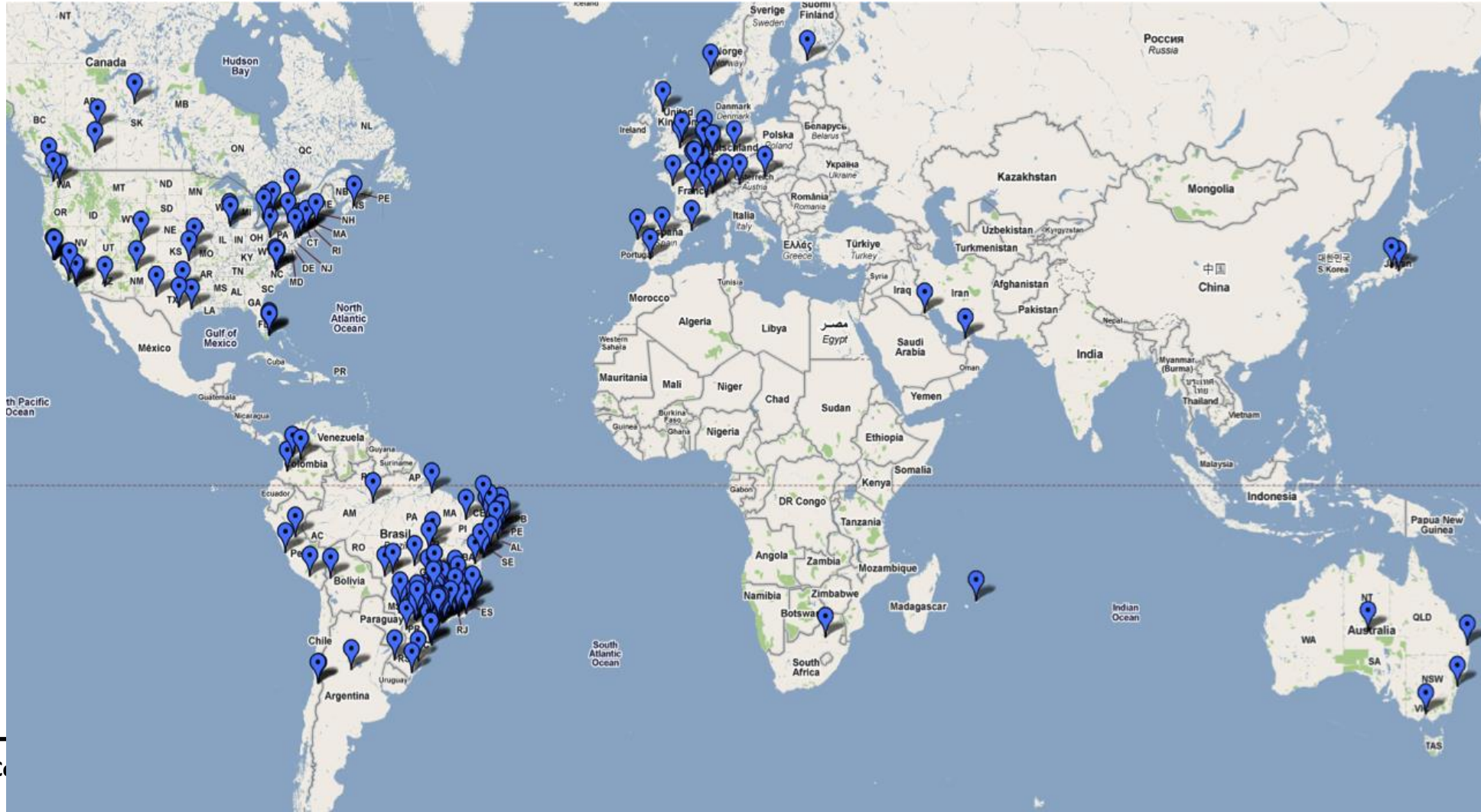


Alumni





... and they fly



START
UP 

