PERSONAL INFORMATION

Davide Aguiari

✉ davide.aguiari2@unibo.it

in Davide Aguiari

github.com/gorghino

Sex M | Date of birth 08/03/1990 | Nationality Italian

EDUCATION AND TRAINING

From September 2017 to March 2021	**Joint Doctorate (Ph.D.)**

Electronic and Computer Engineering (Cagliari)
ED 130: Informatique, télécommunications & électronique de Paris

University of Cagliari – Italy & Sorbonne Université – Paris (France)

Supervisor: Prof. Daniele Giusto & Luigi Atzori (Cagliari)
Co-supervisor: Prof. Giovanni Pau (Paris)

IoT - Networking thesis thesis *"Exploring Computing Continuum in IoT Systems: Sensing, Communicating and Processing at the Network Edge"*

From September 2014 to March 2017	**Computer Science Master degree**	110/110 with honors

Alma Mater Studiorum, Università di Bologna - Italy

In particular:
Systems and networking, parallel algorithms, 3D graphic, artificial intelligence, Wireless and mobile networks, game theory and human-computer interaction

Internet of Things thesis "*Named Data Networking in IoT based sensor devices*".
Thesis carried out abroad at LIP6 (Laboratoire d'Informatique de Paris 6) – UPMC (Pierre and Marie Curie University) – Paris, from September 2016 to March 2017.

From September 2009 to March 2014	**Computer Science Bachelor degree**	106/110

Alma Mater Studiorum, Università di Bologna - Italy
In particular:
Computer Architecture, Operating Systems, Databases,
Software Engineering, Mobile Applications (Android), System Administration.

Computer graphics thesis "*An OpenGL library to select and interact with polygonal mesh*"

From September 2004 to July 2009	**High school degree** Liceo scientifico statale Leonardo Science and technology Brescia - Italy	81/100

July 2006 and July 2007	**Summer english camps** Waterford (IRE) and Dublin (IRE) Morning English lectures; *Afternoon recreational activities and sightseeing*

WORK AND TEACHING EXPERIENCE ■

From June 2020 **UniBO research fellow II**

Development and study of a prediction/monitoring battery system for connected electric vehicles with Engineering University in Bologna
Department: Centro Interdipartimentale di Ricerca Industriale su ICT – Bologna - Italy
Supervisor: Prof. Giovanni Pau

October / December 2019 **SMS Teaching Assistant**

Smart Mobility Systems (SMS) Teaching Assistant (10h lectures + 20h tutoring)
Topic: broadcast mechanisms in vehicular scenarios, geo-cast and routing algorithms in the V2X environment. Machine learning and Deep Learning principles for vehicular scenarios
Department: Sorbonne Université (Paris) – Computer Science
Teacher: Prof. Giovanni Pau

From May 2018
to
April 2020 **UniCA research fellow**

Development of a S-IoT system for real-time detection of the air quality
Department: DIEE Department of Electrical and Electronic Engineering – University of Cagliari – Cagliari – Italy
Supervisor: Prof. Daniele Giusto

September 2017 **Class training for Researchers' Night 2017**

4h high school class training for the researchers' night.
Project: App designing "Do you take me to a Smart City?"
School: Manfredi Tanari Institute (Bologna – Italy) – **Class**: Company information systems.

From April 2017
to
March 2018 **UniBO research fellow I**

to

TIME (Integrated technology for Electric Mobility) project
Department: Centro Interdipartimentale di Ricerca Industriale su ICT – Bologna - Italy

Development and study of an electric car cockpit UX/UI in collaboration with Engineering University in Bologna
Supervisor: Prof. Silvia Mirri

**From April 2015
to
March 2017**

Web developer

Premier Group s.r.l
Padenghe del Garda (BS), Italy

Front/Back-end developer

**From April 2014
to
August 2014**

Warehouseman & worker

Clesse UK
Pershore, Worcestershire, England
Production & Warehouse Operative

PERSONAL SKILLS

Native language | Italian

Other languages

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
English				
C1	C1	C1	C1	C1
French				
A1	A1	A1	A1	A1

Tech/Computer skills

Excellent knowledge in different general-purpose languages, such as:
- C/C++,
- Python
- Java,
- Scheme,
- Assembly

Good knowledge in Linux programming, scripting (BASH, AWK) and system administration.
Decent knowledge of parallel programming with MPI protocol and Java RMI libraries for distributed systems.
Great experience and ability in open source software design and development.
Excellent knowledge of single-board computers programming as Arduino, UDOO, Beaglebone; great interest in IoT panorama and WSN (Wireless Sensor Networks), electronical principles and environmental sensing.
Remarkable ability in database design, development and maintenance. Extensive knowledge of SQL and a most common DBMS such as
• MySql,
• PostgreSQL.
Excellent knowledge of languages and web technologies including
• HTML5 / CSS3,
• Javascript and JQuery,
• MVC design,
• Wordpress / Joomla
• XML, XPath, XSLT.
Great skills in Android mobile applications development.
Very good math knowledge.

Publications

Luigi Russi, Paolo Guidorzi, Beatrice Pulvirenti, Giovanni Semprini, Davide Aguiari, Giovanni Pau
Air quality and comfort characterisation within an electric vehicle cabin
2021 IEEE International Workshop on Metrology for Automotive (MetroAutomotive)

Aguiari Davide (2021)
Exploring Computing Continuum in IoT Systems: Sensing, Communicating and Processing at the Network Edge [PhD Thesis]
University of Cagliari - Electronic Engineering and Computer Science
Sorbonne Université - ED 130: Informatique, télécommunications & électronique de Paris

Davide Aguiari, Andrea Ferlini, Jiannong Cao, Song Guo and Giovanni Pau
C-continuum: Edge-to-Cloud computing for distributed AI
IEEE INFOCOM 2019 - IEEE Conference on Computer Communications Workshops

Davide Aguiari, Giovanni Delnevo, Lorenzo Monti, Vittorio Ghini, Silvia Mirri, Paola Salomoni, Giovanni Pau, Marcus Im, Rita Tse, Mongkol Ekpanyapong, Roberto Battistini:
Canarin II: Designing a smart e-bike eco-system. CCNC 2018: 1-6

Rita Tse, Lorenzo Monti, Catia Prandi, Davide Aguiari, Giovanni Pau, Paola Salomoni:
On Assessing the Accuracy of Air Pollution Models Exploiting a Strategic Sensors Deployment. GOODTECHS 2018: 55-58

Rita Tse, Davide Aguiari, Ka-Seng Chou, Su-Kit Tang, Daniele Giusto, Giovanni Pau:
Monitoring cultural heritage buildings via low-cost edge computing/sensing platforms: the Biblioteca Joanina de Coimbra case study. GOODTECHS 2018: 148-152

Davide Aguiari, Chiara Contoli, Giovanni Delnevo, Lorenzo Monti:
Smart Mobility and Sensing: Case Studies Based on a Bike Information Gathering Architecture. GOODTECHS 2017: 112-121

Aguiari, Davide (2017)
Named Data Networking in IoT based sensor devices. [Master Degree],
Università di Bologna, Corso di Studio in Informatica Magistrale [LM-DM270];

Aguiari, Davide (2014)
Una libreria OpenGL per la selezione e editing di mesh poligonali. [Bachelor Degree],
Università di Bologna, Corso di Studio in Informatica [L-DM270];

Conferences and seminars

INFOCOM 2019
Date: 29 April-2 May 2019
Role: Speaker – Author of "C-continuum: Edge-to-Cloud computing for distributed AI"
City: Paris

GOODTECHS 2018
Date: November 28-30, 2018
Role: Speaker – Author of "Monitoring cultural heritage buildings via low-cost edge computing/sensing platforms: the Biblioteca Joanina de Coimbra case study"
City: Bologna

G7 Ministerial Meeting on Environment
Date: 6 June 2017
Role: Attendee and developer
City: Bologna

"Environmental sensing" meeting
Date: 3-4 December 2016.
Role: Attendee
City: Asian Institute of Technology (AIT) – Bangkok (Thailand)

Focus group/Experience Prototyping iLocalApp
Date: 27 April and 24 May 2016
Role: Attendee
Focus Group: Focus group and experience prototyping for Eramsus+iLocalApp project, coordinated by Foreign languages and Literature School – University of Bologna
City: Bologna

Multistage Congestion Games for Wireless Real-Time Streaming
Date: 28 January 2016.
Role: Speaker
Conference: Game theory class (prof. Giovanni Rossi)
City: Bologna

Rating friends without making enemies
Date: 26 May 2015.
Role: Speaker
Conference: Complex systems class (prof. Ozalp Babaoglu)
City: Bologna

Content Distribution Networks
Date: 5 December 2014.
Role: Speaker
Conference: System simulation class (prof. Lorenzo Donatiello) with Alain Dichiappari and Giulio Cinelli
City: Bologna

Cutting the electric bill for Internet-Scale Systems
Date: 22 November 2013.
Role: Speaker
Conference: Middleware systems class (prof. Fabio Panzieri) with Daniele Baschieri and Matteo Martelli.
City: Bologna

L'Europa delle cittadinanze
Date: 9 May 2006.
Role: Tech manager
Conference: National Project Education for European citizenship
City: Liceo Leonardo – Brescia

Projects   **CarFi - Enabling V2X with Wifi**
Data: From November 2017 – Now
Role: Software maintainer
CarFi allows any vehicle to connect to existing WiFi. The software is private and the idea is protected by a patent.

Pollution sensing in a UNESCO World heritage site: the Joanina library in Coimbra – Portugal
Date: From December 2016 – Now
Role: Developer and Designer
Project funded by Ministry of Research of Macau

SEAHAZEMON project
Date: From December 2016 – Now
Role: Developer
Project funded by Foreign Minister of France
Pollution sensors development and setting in rural areas in Thailand

AlmaBike project
Date: From May 2017 – Now
Role: Developer
Particulate matter sensors setting into an electric bike in collaboration with University of Bologna

NDN over UDP
Date: August 2016
Subject: Mobile system
An Arduino library for exploiting NDN (Named Data Networking) over TCP/IP in a Wireless sensor Network.

Link: https://github.com/ichigo663/NDNOverUDP

Golf Car
Date: July 2016
Subject: Graphic
A videogame made with OpenGL graphic libraries

Entertandem – A virtual reality tandem
Date: From April to July 2016
Subject: Multimedia
A 3D virtual reality environment made with High Fidelity, an open source VR framework, in collaboration with the European project E-local for incidental learning.

Liar's dice
Date: From February 2016 to March 2016.
Subject: Distributed systems
A fault-tolerant distributed videogame made with Java RMI.
Link: https://github.com/gorghino/diceliar

CookApp
Date: From December 2015 to February 2016.
Subject: Human-computer Interaction (HCI)
UI/UX in-depth study to the development of a new mobile app interface for cooking called CookApp.

Chess AI
Date: From May 2015 to July 2015.
Subject: Artificial Intelligence
AI chess development with the king and pawns

Percolation
Date: June 2015
Subject: Complex systems
Development and analysis of percolation problem through Netlogo

Dromocrone analysis
Date: From April 2015 to May 2015.
Subject: Mathematical computation / Geology
A Mathematica interface development for dromocrone analysis.

An Insight View of Social Networks Forensics
Date: Da February 2015 a March 2015.
Subject: Digital forensics
Digital forensics in Social networks analysis.

Prefix sums calculation via MPI protocol
Date: Da December 2014 a January 2015
Subject: Parallel algorithms
Prefix sums algorithm implementation in parallel on multi-processors via MPI protocol

Dead Reckoning analytical error through simulation
Date: From November 2014 to December 2014.
Subject: System simulations
Study of "dead reckoning" phenomenon through a model simulation OMNET+INET.

An OpenGL library to select and interact with polygonal mesh
Date: From December 2013 to March 2014.
Subject: Bachelor thesis.
An OpenGL lib developed to select/edit polygonal mesh in a 3D scene.
Written in C + OpenGL 2.0+ API.

CityNotifier
Date: From July 2013 to October 2013.
Subject: Web technologies
A web service to signal/search/notify about city issues like road problems, emergencies or public events.
Written in HTML/CSS + Javascript/jQuery + Bootstrap
Link: http://ltw1306.web.cs.unibo.it/

SOS (Strange Operating System)
Date: From February 2013 to June 2013.
Subject: Operating Systems
A simple kernel for the µMPS architecture based on semaphores and priority based scheduling.
Written in C.
Link: https://github.com/gorghino/so1213

Android Monkey Island Swordfighting
Date: From February 2013 to April 2013.
Subject: Mobile Applications (Android)
An android game: porting of Monkey Island™ 1 insult swordfighing.
Written in Java + Android.
Link: https://github.com/gorghino/miswordfighting

Carpooling
Date: From March 2012 to May 2012.
Subject: Software Engineering
A Carpooling service simulation in a real system.
Booking and users are managed by interfacing to a PostgreSQL database.
Written in Java + Java Swing

MiniHTTP/miniHTML Proxy with pre-fetching parallelization
Date: From January 2011 to March 2011.
Subject: Networking
A simple caching HTTP proxy working on a subset of HTML.
Developed in C with pthread to serve multiple HTTP Request

Driving license	Driving license B, n. BS5524409N, MCTC-BS Brescia 22/09/2008

Hobbies And Other activities

Sport: Basketball – competitive level (guard in Team 75 Lograto) (1996-2017)
Volunteer experience: scout AGESCI Roncadelle1 (2008 - 2005).
Passions: Cinema and american/english tv series, trekking, travel. Videogames fan, graphic adventures in particular.

Professional competence

Having interacted with different personalities in diverse working environments over the years I'm very adaptive and flexible.
I always tend to complete the tasks I've been assigned to the best of my abilities.

References

Giovanni Pau, Ph.D
Full Professor
Department of Computer Science and Engineering
University of Bologna
Email: giovanni.pau@unibo.it

Daniele Giusto
Full professor at University of Cagliari
Email: ddgiusto@unica.it
Link: http://people.unica.it/danielegiust