

CURRICULUM VITÆ

Prof. Traian Muntean

Position: Professor of Computing Science (Professeur des Universités de Classe Exceptionnelle)

Aix-Marseille University (France)

Head of ERISCS Research Group-UMR7373 CNRS (I2M)

Formerly: Research Director CNRS, Grenoble, France

Personal Data

Address	<i>Groupe de Recherche ERISCS Parc Scientifique de Luminy – Polytech/DI F-13288 MARSEILLE Tel : +33491828501 ; Fax :+33491828511 TRAIAN.MUNTEAN@UNIV-AMU.FR</i>
W-page	http://traian.muntean.perso.luminy.univ-amu.fr/
Name and address of employer	Aix-Marseille Université 58, Bd Charles Livon - F13284 Marseille Cedex 07 - France
Nationality	French
Other	Languages: French, English, Romanian (mother tongue)

EDUCATION:

- “Habilitation” Diploma, University of Grenoble (INPG)
- Ph.D. Computing Science, University of Grenoble (UJF)
- Master Degree in Computer Science and Applied Mathematics, University of Grenoble (UJF&INPG)

ACADEMIC POSITIONS HELD AND RELATED PROFESSIONAL EMPLOYMENT:

- Professeur des Universités-Professor Computer Science (since 1995), Aix-Marseille University,
- Head & Founder of “Communicating & Concurrent Informatics Systems” Research Team
LIM/CNRS laboratory-Marseilles (1995-2000)
- Director of ERISCS Research Group – CNRS UMR7373 I2M (since 2001-Interdisciplinary Research Group in
Computing and Mathematics for Formal Design of Critical Communicating Systems)
- [CNRS](#) Research Director, (Delegation- IMAG Research Institute-TIMA Laboratory, Grenoble, 2000-2003
- Research Director, [IMAG](#) Research Institute-LGI Laboratory, INPG- University of Grenoble, 1983 -1994
Head of “Massively Parallel Systems” Research Group at IMAG/CNRS Laboratory
- Invited Professor, EPFL Lausanne, Postgrade program, 1987-1988
- Associate Professor, University Joseph Fourier of Grenoble, till 1983
- Research Fellow (1978-1979), Oxford University-Programming Research Group, (on leave from INRIA),
- Research Fellow, Philips Research Labs, MBLE-Brussels (on leave from INRIA Paris), 1977-1978
- Associate Researcher, IMAG-University of Grenoble(INPG), 1973-1977

HONORS:

- Invention Achievement Award, National Prize “Massively Parallel Architectures”, 1986
- European Commission, Scientific and Technical Award for Outstanding Scientific and Technical Achievements in the “Supernode” Project (1st European Parallel Architecture of a 1000nd transputers processors), 1988
- Scientific and Technical Award, National Prize for Innovation and Creativity as Scientific Founder of academic originated start-ups
- Honorary Professor, University of Iasi-Romania, since 1997

AREAS OF INTEREST:

- Concurrent Programming, Parallelism, Interactions, Communication
- Models for the Design of Correct Distributed and Communicating Systems,
- Networking Computing, Mobility, Adaptive and Reconfigurable Computing Systems
- Architectures for Embedded systems and networks

➤ MAJOR R&D TRANSFER ACTIVITIES:

- Pôle de Compétitivité SCS "Solutions Communicantes Sécurisées": Administrator and Secure Software Coordinator of the French National R&D Cluster for Secure Communicating Systems
- European FP6 & 7: Expert and Evaluator
- National Expert for ANR (Agence Nationale de la Recherche)
- Latest R&D founded National Projects (2006-2014):
 - Satellite Network Terminal (secure terminal for fast & low cost satellite Internet access) Thales Alenia Space
 - EVASI (secure connectors for e-health services)
 - M-Pub (mobile publicity: privacy preserving secure access independent of service providers)
 - Secure communicating architecture for smart-cities services and transport
- GEMPLUS (1999-2002) – French Major Smartcard Company, designing embedded kernels and formal prover for JavaCard bytecode
- Scientific Co-ordinator, European Consortium MATISSE (partners: DERA, ClearSy, GEMPLUS, SIEMENS Transportation, Aabo Univ. Turku, CNRS & Univ. of Marseille, Univ. of Southampton), designing methods and tools for the industrial strength of critical systems engineering
- FRANCE TELECOM- R&D (1997-98): designing adaptive routers for high speed networks.
- CEA-Paris (1996-99): French National Nuclear Agency, designing optimal parallel architecture for real-time scheduling of control tasks for nuclear plants
- DGA/CPM Paris (1991): French Defence Agency, Naval Department, designing methods for real-time trajectory tracing using original parallel genetic algorithms (inventor of this family of genetic algorithms)
- European Consortium (British-French-German) PAPAGENA (1992-1994) for the industrial use of parallel genetic algorithms and their applications
- ADV-IBSI (1989): Simulation Company, Paris, designing parallel algorithms for Petri Nets based simulators (ELSIR Project)
- SRTP & HBS Paris (1986/87): French Post and Telecommunication Company, designing the first parallel architecture (372 processors) for hand writing recognition and postal sorting
- CCETT(1986-1987): French Agency for Transport and Telecommunication, designing a multiprocessor architecture for 3D ray tracing for space images
- European Consortium (British-French partners) SUPERNODE 1&2 (1985-1992) for the design of the first (1000nd processors) reconfigurable massively parallel architecture of transputers
- NCR France (1987): evaluation of the GAPP multi-processor architecture
- APOLLO COMPUTERS(1986): first Occam/X compiler for Unix Workstations
- ARCHIPEL (scientific co-founder 1985-1987): designing the Volvox parallel architecture
- MERLIN GERIN (1986): Major French Electrical Engineering Company in Grenoble, designing communication and clock synchronisation primitives for programmable automata networks
- APSYS/APTOR (1983-1996): Industrial LAN's Company in Grenoble, designing communication primitives for the first real time industrial network FACTOR
- BULL Sems (1982-1984): designing the first atomic broadcasting based real time local network

GRANTS:

- National R&D SCS Cluster Projects (since 2007): approx 2M€ grants
- EU: MATISSE (1999-) Cost for our participation (550 KEuros – CNRS Contract)
- ESPRIT Program Grants :
 - Supernode 1&2 (1985-1988 & 1989-1992) (800 KEuros),
 - Papagena(1991-1994 (300KEuros),
 - Nerves(1991-1993) (150KEuros)
 - DisCo-Tempus(1993-1997) (950 Keuros-Prime Contractor)
- Various industrial contracts and grants for an amount of approx. 2,5 MEuros

PROFESSIONAL SOCIETIES & ACTIVITIES INCLUDING PROFESSIONAL REGISTRATIONS:

Member: IEEE Computer Society, ACM, AFCET, SMI, SPECIF
Several Editorial Boards and International Conferences Program Committees

ACADEMIC COLLABORATIONS: (some)

Univ. of Oxford (PRG-Prof. Hoare, Roscoe), Univ. of Southampton (Prof. Hey, Jesshope, Butler),
EPF Lausanne (Prof. Schiper, Nicoud), Univ. of Louvain (Prof. J-J Quisquater);
Univ. of Illinois (UIUC-Prof. Agha), Uppsala University(S)
Politehnica Univ. of Bucarest, AIC-University of Iasi; UBB & UTCN-Universities of Cluj-Napoca, etc.

PROFESSIONAL ACTIVITIES

RESEARCH DIRECTIONS AND MAJOR ACCOMPLISHMENTS:

- Concurrent and Distributed Systems Design and Programming
- Formal Models for the Design of Correct Distributed and Reconfigurable Systems,
- Networking Computing, Mobility, Adaptive and Reconfigurable Communicating Systems
- Architectures for Embedded Networking Systems
- Mathematics of Programming and of Communication
- Secure and Anonymous Communicating Systems, Incremental Cryptography and Associated Tools

My research focuses on methods and tools for correct design of concurrent and communicating systems. It spans areas such as systems architectures, algorithms, programming methodology and languages, models for correct critical systems design. I have always strived to achieve a sort of transversal goal in my projects linking specification and design methods with prototyping and also keeping as much as possible a fair balance between theory and practical development. Our projects have often led to prototyping realizations and sometime products in collaborative R&D advanced industrial projects.

Since 1973 and until 1994 my research activities were held primarily at the Institute of Informatics and Applied Mathematics (IMAG) in Grenoble. At IMAG Institute, between 1983 and 1994, I have initiated and animated as research leader (Directeur de Recherche) the first group on “ Massively Parallel Systems and Applications “. Previously, on leave from the French National Research Institute in Computer Science and Automation (INRIA), I have conducted research in the design of parallel programming languages and specification formal models at Oxford University (Programming Research Group, lead by Tony Hoare) and at Philips Research Laboratory in Brussels (research group lead by Michel Sintzoff). Major EU-ESPRIT, BRA and FP6 projects have been conducted under my supervision in this period (e.g. SUPERNODE project has been awarded by the European Commission in 1988).

From 1994, I have been appointed as full time tenure professor at University of Marseille. Our research dealt with:

- design and programming of Asynchronous Distributed and Parallel Systems
- adaptive communicating systems (routing, reconfigurability, mobility)
- correctness of construction of Critical Concurrent Systems by proved transformation refinements of formal specifications

Responsibilities and Accomplishments

- My academic responsibilities include the constitution and direction since 1982 of two research groups within CNRS (French National Scientific Research Council) associated laboratories at the University of Grenoble ([IMAG](#) Research Institute) and then after 1994 at the University of Marseille. I have also set up one of the first Interdisciplinary Research Group on Communicating Critical Systems ([ERISCS](#)) at the University of Marseille.

- The scientific coordination of European Union founded projects and constant responsibilities in this framework since 1984. The grants support for such R&D projects since 1985 has been of approx 50M€. I have been initiator and coordinator of four major [ESPRIT](#) (R&D) and Basic Research Action Projects (e.g. [NERVES](#), «[PAPAGENA](#)»), of a COMMET Program (industry transfer) project and three TEMPUS& SOCRATES Program (higher education) projects in Grenoble and Marseille. The “[SUPERNODE](#)“ Project (1985-1992) has been awarded by the European Commission in 1987 for the design of the first European Massively Parallel Computer (more than 1000 processors). The purpose of this project was the feasibility study, the design and the industrial development of the first European massively parallel, distributed memory computer based on an original dynamically reconfigurable interconnection network switch. Thanks to this project the first parallel machine in France of 256 transputers was installed in my laboratory in 1988. In margin of this project, I have been the initiator and cofounder of the ARCHIPEL SA Company in 1986. The [SUPERNODE II](#) second phase project (16 institutions of four countries of the EU) aimed at the development of programming environments and the first parallel operating system for parallel distributed memory machines (parallel microkernel PARI \bar{X} and PAROS operating system).

Since 1999 I have set up and proposed in collaboration with two other universities (Southampton and Aabo-Turku) and several industrial R&D teams (GEMPLUS, MATRA-Siemens Transportation, STERIA, Perkin Elmer-Wallac), the project [IST-MATISSE](#) “ Methodologies and Technologies for Industrial Strength Systems Engineering “ project <http://www.cordis.lu/ist/projects.htm> which aimed at the correct construction of critical systems by proven refinements construction methods. The main scientific objectives of this project were to use appropriate refinement formal methods in order to develop a constructive method for critical systems design and minimize, or eliminate when possible, any testing phase in the design process.

- Chairman and organization of International Conferences as for instance (lastly):

IEEE-ISPDC 2014 ; juin 2014: <http://eriscs.esil.univ-mrs.fr/ISPDC2014-TM/bienvenue.html>

International Conference «Algebraic Informatics » CAI'2013 ; LNCS-Springer

<http://www.springer.com/computer/theoretical+computer+science/book/978-3-642-40662-1>

Crypto'Puces Workshop:

http://iml.univ-mrs.fr/ati/crypto_puces/2011/bienvenue.htm

http://iml.univ-mrs.fr/ati/crypto_puces/2009/bienvenue.htm

http://iml.univ-mrs.fr/ati/crypto_puces/2007/bienvenue.htm

CASSIS'04 « Construction and Analysis of Safe, Secure and Interoperable Smart devices and systems »
<http://www-sop.inria.fr/everest/events/cassis04> ; published acts LNCS 2005.

“First International Workshop on Refinement of Critical Systems” :<http://www.esil.univ-mrs.fr/~spc/rcs02/rcs02.html>

Supervision of relevant Ph.D. Students

[titles in French, in italic brackets the actual function or employment]:

- Victor Sanchez, 1984 "Un noyau pour systèmes répartis"; [Prof. l'UNAM ; chercheur LANIA, Mexique]
- Cécile Roisin, 1985 "Spécification de protocoles de communication à l'aide de CSP" [PR Univ.Grenoble]
- Michel Riveil, 1987 "CONKER: noyau pour systèmes de processus communicants"; [PR à l'UNSA-Nice]
- Jacques Eudes, 1990 "PDS: un environnement de développement de programmes parallèles" [IR à l'UJF]
- Philippe Waille, 1991 "Architectures Parallèles à Connectique Programmable: Reconfiguration et Routage"; [MC –UJF Grenoble]
- Yves Langué, 1991 "Parx: Architecture de noyau de Système d'Exploitation Parallèle"; [Dir. Entreprise]
- Néstor Gonzalez Valensuela, 1991 "Parx: Noyau de système pour les ordinateurs massivement parallèles; contrôle de la communication entre processus", [Prof. Univ. Santiago de Chile]
- Xiaobo Philippe Yu, 1992 "Un système formel de transformation de programmes pour exécution sur machines parallèles"; [R&D, Ericson]
- El-Ghazali. Talbi, 1993 "Allocation de processus sur architectures parallèles à mémoire distribuée"; [PR.-Lille]
- François Menneteau, 1993 "ParObj, un noyau pour système parallèle à objets", [R&D Industrie]
- Léon Mugwaneza, 1993 "Contrôle des communications dans les machines parallèles à mémoire distribuée: contribution au routage automatique des messages", [MdC-ESIL Marseille]
- Ahmed Elleuch, 1994 "Migration des processus dans les Systèmes Massivement Parallèles", [MdC-Tunis]
- Harold Castro, 1995 "Entrées-Sorties dans les Systèmes Massivement Parallèles", [prof. Univ. des Andes]
- Leila Baccouche, 1995 "Mécanisme d'ordonnancement distribué de tâches temps-réel dans les systèmes parallèles", [enseignante Univ. Tunis]
- Alba de Melo Balaniuk, 1996 "Modèles de cohérence multiples pour machines virtuelles à mémoire distribuée dans les architectures massivement parallèles", [prof. Univ. Sao Paolo]
- Robert Despons, 96 "Conception d'une Machine Virtuelle pour Systèmes Parallèles à Diffusion" [R&D]
- Christophe Aussagues, 1998 "Placement optimal de tâches pour systèmes parallèles temps critiques; application à un système de contrôle nucléaire", [IR CEA-Saclay]
- Stéphane Rivas, 1999 "Communications adaptatives dans les réseaux généraux", [R&D, PME Paris]
- Cristian ENE, 2001 "Un modèle formel pour les systèmes mobiles à diffusion", [MdC-UJF Grenoble]
- Ludovic CASSET, 2002 "Construction correcte de logiciels pour cartes-à-puce ; développement formel d'un vérifieur de byte code Java à l'aide de la Méthode B", [R&D, PSA-Paris]
- Javier GARMENDIA-TORRES, 2003 "MobiRouting : Un modèle de routage pour réseaux mobiles" [R&D]
- Jean-Louis LANET, HdR 2004 " Produire des Logiciels Sûrs; Contribution pour la construction de systèmes enfouis – Application aux cartes-à-puce" [PR Univ. Limoges]
- Olivier FAURAX, 2008 « Modèle et Simulateur pour Attaques en Fautes des Cartes à Puces »
- Laurent BOBELIN, 2008 « Tomographie depuis plusieurs sources vers multiples destinations dans les réseaux de grilles informatiques haute performances » [post doc INRIA/ENS Lyon]
- Laurent VALLET, 2012 « Contribution au renforcement de la protection de la vie privée ; Application à l'édition collaborative et anonyme des documents »
- Irfana MEMON, 2013, "Energy efficient secure and privacy preserving data aggregation in Wireless Sensor Networks" (Univ. Teacher, Pakistan)
- Kévin Atighehchi, 2015, « Contributions à l'efficacité des mécanismes cryptographiques" [ATER]
- Gabriel RISTERUCCI, 2016 "Gestion de droits d'accès hiérarchiques basée sur la cryptographie – Application à la gestion du contenu des documents"; (Mars. 2016)

TEACHING EXPERIENCE (HEADLINES):

- “Programming Languages”, “Logics for Computing” University of Grenoble INPG, 1974-1977
- “Operating Systems Principles” (lectures), French National Conservatory for Arts and Crafts, September 1975-June 1978
- “Methods for optimised systems design”, Postgrade Degree of “Elaborate Studies in Systems Engineering and Applied Mathematics” University of Grenoble (1977)
- Full time associated professor (lectures and seminars 100% responsibility), Graduate Students, Department of Computer Science, University of Grenoble (September 1981-June 1984)
 - Concurrent Programming
 - Operating Systems Principles
 - Algorithms and Data Structures
 - Compiling Techniques and Optimised Compilers Design
- “Concurrent Computer Architectures”, Postgrade Degree of “Elaborate Studies in Computing and Applied Mathematics”, University of Grenoble, 1985-1987
- “Foundations of Concurrent Programming”, Postgrade Lecturer at Swiss Federal National Polytechnic High School (EPFL) in Lausanne (1988)
- “Formal Models for Parallel Programming”
 - Postgrade Lecturer at Swiss Federal National Polytechnic High School (EPFL) in Lausanne (1989)
 - Department of Computing and Applied Mathematics (Elaborate Studies Degree), University of Grenoble, (1988)
- Invited Lecturer for a Series of seminars on “Advanced Concurrent Systems” for a group of university and industry research projects organized by Institut National Polytechnique de Grenoble (IMAG-INPG) and the French National Research Institute in Computer Science and Automata (INRIA) (1991,1993)
- Invited Lecturer on “Models for Parallel Programming” and “Advanced Massively Parallel Systems” at European Union founded Summer Schools (1992-1996)
- Invited Lecturer at UNAM (Mexico City) Winter Schools in Morelia (1995)
- Invited Lecturer on “Theory of Concurrent Programming” at Institute of Monterrey Advanced Seminar (Mexico-1996)
- Full time Professor of Computer Science at the University of Marseille (since September 1994 and at present). Annual lectures and seminars for doctorate level students and for graduate students at Engineering High School (ESIL):
 - Models for Concurrent Computing
 - Distributed Operating Systems Principles
 - Parallel Algorithms and Concurrent Programming Languages
 - Parallel Virtual Machines
 - Constructing correct programs and distributed systems by Proved Refinement Techniques