

## **Pierre Jouvelot (3/8/2017)**

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### **1 General**

- Born in Geneva (Switzerland), November the 17th 1958
- French Nationality
- Senior Research Scientist at the Research Center for Computer Science (CRI) of MINES ParisTech (formerly Ecole nationale supérieure des mines de Paris)

### **2 Diplomas**

- Professorship qualification (Paris, 95)
- Habilitation Thesis (Univ. Paris Orsay, 94)
- Postdoctoral Fellow (Laboratory for Computer Science, MIT, USA, 87)
- Ph.D in Computer Science (Univ. Paris 6, 86)
- Engineering Degree in Computer Science (Ecole Supérieure d'Electricité, 84)
- M.Sc in Physics and Computer Science (Univ. Paris 6, 82)
- Engineering Degree in Meteorology (ENM, 81)

### **3 Domains of Interest**

- New Multimedia Technologies (data, images, sound, videogames)
- Musical Applications of Multimedia (education, health)
- Tools and Languages for Software Engineering
- Design, Static Semantics and Implementation of Programming Languages

## 4 Prizes

- 2017 SoftCOM Best Paper Award (co-author, with Kameswar Rao Vaddina, Florian Brandner and Gérard Memmi)
- 2016 Elsevier Entertainment Computing Journal “Excellence in Reviewing“
- 2014 ACM “25 years of International Conference on Supercomputing” Best Papers (co-author, with Francois Irigoien and Rémi Triolet)
- 2012 ACM/IEEE LICS Test-of-Time Award (co-author, with Jean-Pierre Talpin)
- 2011 Charles Foix (PhD thesis advisor for Samuel Benveniste, prize winner)

## 5 Professional Experience

- Associate Researcher (Symbiose group, EnsAD, 2017-)
- Invited Professor (Telecom ParisTech, 2017-2020)
- Principal investigator CRI of the inter-Carnot M.I.N.E.S. and TSN AA-FUP projects (2017)
- Faust Open Source Software Competition jury member (LAC’2015, Lyon 2016)
- Legivoc Project Leader (2014-2015)
- Principal investigator of the Carnot M.I.N.E.S. PPS (Preuves de programmes synchrones) and PPS2 projets (2015)
- Expert for Business Angels du Gatinais (2014-)
- Principal investigator of the ANR FEEVER research project (2013-2016)
- Associate investigator of the Région Ile-de-France Weezic and Meludia validation projects (2013-2014)
- Principal investigator of the CFI/Oseo MINDs research project (2011-2013)
- Chairman of the Scientific Session “Sécurité des personnes soignées à domicile ou en EHPAD”, JETSAN 2013, May 2013
- Senior consultant in data compression technologies for SSC Avocats (2010-2011)

- Associate Investigator of the ANR ASTREE research project (2009-2011)
- Member of the Selection Committee "Prix des ingénieurs de l'année" (2004-2005)
- Associate Investigator in the "AREZZO" RIAM research project (2002-2004)
- IHEM Business School Auditor, Casablanca, Morocco (Sep.2002)
- Co-founder of the *ClickNPlayMusic* ([www.cnpmusic.com](http://www.cnpmusic.com)) music distance learning company (2000)
- Consultant for CNES/CISI in audio and video compression techniques (Barracuda project) (1994-95). Nominated for the AFCET 1995 prize for Best Industrial Collaboration.
- Steering Committee Member of the Image and Communication Architecture Institute IMAC (Université Paris-II) (1994-02)
- Consultant in computer techniques (HDTV, compression) at CST (subsidiary of the Centre National de la Cinématographie) (1993-94)
- Associate Investigator in the "LOMAPS" ESPRIT research project (1993-97)
- Associate Investigator in the "Programmation Fonctionnelle" project of CNRS GDR Programmation (1993-1995)
- Principal Investigator of the MIT/CRI "The FX/CM Compiler" project, MIT contract number GC-R-117153, 1990-1991
- Member of the Program Committee of the International Workshop on Compilers for Parallel Computers (Paris, CPC'90), International Workshop on Static Analysis (Bordeaux, WSA'93), International Symposium on Static Analysis (Namur, SAS'94; Glasgow, SAS'95), International Conference on Signal Processing Applications and Technology (Boston, ICSPAT'96), International Entertainment Computing Conference (Paris, ICEC'09), Colloque international "Des outils et des méthodes innovantes pour l'enseignement de la musique et du traitement du signal" (St-Etienne, 15), Sound and Music Conference (Hamburg, SMC'16), International Faust Conference (Mainz, 18)
- Visiting Professor at LCS/MIT (July-August 88, January-March 89, June-September 89, January-March 90, July-August 90, January-March 91, July-September 91, January-March 92, July-August 92, August 93), Oregon Graduate Institute (March 93), MIT AI/Lab (Jun 93)

- Reviewer for:

**Conferences** *European Symposium on Programming (ESOP)*, *ACM Principles Of Prog. Lang. (POPL)*, *ACM Principles of Language Design and Impl. (PLDI)*, *Renpar*, *Europar*, *Symp. on Theor. Aspects of Comp. Sc. (STACS)*, *International Symposium on Static Analysis (SAS)*, *Euromicro*, *ACM Transactions on Programming Languages and Systems*, *ACM Conference on Code Generation and Optimization*, *Sound and Music Conference (SMC)*, *ACM Principles and Practice of Parallel Computing (PPOPP)*, *International Conference on Music Computing (ICMC)*, *Systems, Man and Cybernetics Conference (SMC)*

**Journals** *The Computer Journal*, *Technique et Science Informatiques*, *Science of Computer Programming*, *ACM Computing Reviews*, *International Journal of Parallel Programming*, *Informatique Théorique et Applications*, *Entertainment Computing*, *Software: Practice and Experience*, *Journal of Grid Computing*, *Applied Ontology*

**Books** Morgan-Kaufman (compression), Springer Verlag (Games)

- Expert for the *US National Science Foundation (NSF)*, *Natural Sciences and Engineering Research Council of Canada (NSERC)*, *Fonds Formation de Chercheurs et l'Aide à la Recherche (FCAR, Canada)*, *Prix des ingénieurs de l'année "Industries et technologies"*, *Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO)*, *Fonds national suisse (SNF)*, *Agence nationale de la recherche (ANR)*, *Région Ile-de-France (AIXPé)*
- Consultant on Advanced Compiler Techniques (vectorization, parallelization, functional programming,...) at Bull Research Center (88-91)
- C Compiler designer and implementer on the ISIS Vector Machine, Bull (86)
- Software Engineer at the Development Department of the Météorologie Nationale (CRAY, AI,...) (83-85)
- Chairman of the *Earth Sciences Session* of the 5th Expert Systems Conference in Avignon (85)
- Member of ACM (84-96) and AFCET (84-87)
- IBM Summer School (84)

## 6 Publications

### Editorial Boards

- *Entertainment Computing Journal*, since 2011
- *Presses des Mines* , since 1995
- *Minis et Micros*, 84-90

### Books

- Pagallo, U., Palmirani, M., Casanovas, P., Sartor, G., Villata, S. (Eds.). *AI Approaches to the Complexity of Legal Systems* (book chapter: Vibert, H.-J., Pin, B. and Jouvelot, P. Aligning legivoc Legal Vocabularies by Crowdsourcing). LNAI, Springer, 2018
- d'Andréa-Novel, B., Fabre, B., et Jouvelot, P. *Acoustique Informatique MusiquE : Outils scientifiques pour la musique*. Presses des Mines, 2012
- Meyer, B. *Conception et programmation orientées objet* (Objet-Oriented Design and Programming), Eyrolles, 2000 (book translation). 2nd edition, 2007
- Jouvelot, P., and Leconte des Floris, D. *Introduction au Système d'Exploitation et Logiciel de Base pour Micro-Ordinateurs* (Introduction to Operating System and Tools for Microcomputers), ETSF, 1984

### Refereed Journals

- Perera, L., and Jouvelot, P. *L'émergence d'une nouvelle méthodologie de recherche sonore dans le domaine de la santé : la "designo-thérapie"?* . *Revue Sciences du design* (soumis, 2019)
- Perera, L., Jouvelot, P., Renaud,P. *La communaut d'écoute de sonorits indiennes : une expérimentation de design sonore dans une institution paramédicale en France..* *Revue Hybrid* (soumis, 2019)
- Wargnier, P., Benveniste, S., Jouvelot, P., and Rigaud, A.-S. *Usability Assessment of Interaction Management Support in LOUISE, an ECA-based User Interface for Elders with Cognitive Impairment*. *Technology & Disability*, 30(3), 105-126, 2018
- Gallego Arias, E., Pin, B., and Jouvelot, P. *La preuve de théorèmes pour les masses (soniques)*. *Revue francophone d'informatique musicale*, no.6, July.2018

- de Vogeleer, K., Jouvelot, P., and Memmi, G. *Parameter Sensitivity Analysis of the Energy/Frequency Convexity Rule for Nanometer-scale Application Processors*. Sustainable Computing: Informatics and Systems, Elsevier, p.16-27, May.2017
- Khaldi, D., Jouvelot, P., and Ancourt, C. *Parallelizing with BDSC, a resource-constrained scheduling algorithm for shared and distributed memory systems*. Parallel Computing, Volume 41, Pages 66-89, Jan. 2015
- Vibert, H.-J., Jouvelot, P., and Pin, B. *Legivoc - connecting law in a changing world*. Journal of Open Access to Law, vol 1, 1, Dec.2013
- Barkati, K., and Jouvelot, P. *Synchronous Programming in Audio Processing: A Use Case Study*. ACM Computing Surveys, 46(2), Nov. 2013
- Benveniste, S., Jouvelot, P., Pin, B., and Pequignot, R. *The MINWii Project: Renarcissization of Patients Suffering from Alzheimer's Disease Through Video Game-Based Music Therapy*. Entertainment Computing, vol. 3, no. 4, Elsevier, Dec.2012
- Dias, G., Pais, S. Wegrzyn-Wolska, K., Mahl, R., Jouvelot, P. *Recognizing Textual Entailment by Generality*, Procedia - Social and Behavioral Sciences, ISSN : 1877-0428, Elsevier, Volume 27, 2011, Pages 258-266
- Jouvelot, P., and Orlarey, Y. *Dependent Vector Types for Data Structuring in Multirate Faust*. Computer Languages, Structures and Systems, Elsevier, <http://dx.doi.org/10.1016/j.cl.2011.03.001>, Mar.11
- Boulay, M., Benveniste, S., Boespflug, S., Jouvelot, P., and Rigaud, A.-S. *A Pilot Usability Study of MINWii, a Music Therapy Game for Demented Patients*. Technology and Healthcare J., 19/4(233-46), Jan.11
- Benveniste, S., Jouvelot, P., Michel, R., and Lecourt, E. *La Wiimprovisation en musicothérapie analytique de groupe : design participatif avec des enfants atteints de troubles du comportement*, La revue française de musicothérapie, XXIX, No. 3, 2009
- Talpin, J. P., et Jouvelot, P. *The Type and Effect Discipline*. Information and Computation, vol. 111, no. 2, Jun.94
- Dornic, V., Jouvelot, P., and Gifford, D. K. *Polymorphic Time Systems for Estimating Program Complexity*. ACM LOPLAS, no. 1, Vol. 1, 1992
- Talpin, J-P., and Jouvelot, P. *Polymorphic Type, Region and Effect Inference*. J. of Functional Programming, vol. 2, no. 3, 1992
- Jouvelot, P., and Feautrier, P. *Parallélisation Sémantique*. ITA, vol. 24, no. 2, AFCET, 1990

## Journals

- De Voogeleer, K., Memmi, G., and Jouvelot, P. *Modélisation de la consommation énergétique des programmes : aspects thermiques et loi de convexité énergie-fréquence*. Génie logiciel, June.2016
- Talpin, J.-P., and Jouvelot, P. *Le Compilateur FX et la CM2*, Chroniques Hyperparallèles, Jul.92
- Jouvelot, P., and Dehbonei, B. *Recursive Pattern Matching on Concrete Data Structures*, ACM SIGPLAN Notices, ACM, Nov.89
- Jouvelot, P., and Dornic, V. *FX-87, or what comes after Scheme?*, Special Edition of the BIGRE Bulletin, AFCET, May.89
- Jouvelot, P. *Designing New Languages or New Language Manipulation Systems using ML*, ACM SIGPLAN Notices, Aug.86

## Refereed Conferences

- Sguerra, B., and Jouvelot, P. *An Unscented Hound for Working Memory and the Cognitive Adaptation of User Interfaces*. Submitted to ACM UMAP, Larnaca, Jun. 19
- Perera, L, and Jouvelot, P. *Vers une méthodologie en design sonore médical : de l'interdisciplinarité au design social*. Submitted to 3ème Rencontres Annuelles Internationales du Design, Tunis, Apr. 19
- Goktse, B., Jouvelot, P., and Ravotti, F. *IEDM, an Ontology for Irradiation Experiment Data Management*. Submitted to ESWC19 (<http://arxiv.org/abs/1901.05233>).
- Sguerra, B., Benamara, A., Benveniste, S., Jouvelot, P. *Adaptive Human-Computer Interfaces to Working Memory Limitations Using MATCHS*. IEEE SMC'18, Miyazaki, Oct. 18
- Gkotse, B., Glaser, M., Matli, E., Pezzullo, G., Ravotti, F., Jouvelot, P. *Towards a Unified Environmental Monitoring, Control and Data Management System for Irradiation Facilities: the CERN IRRAD Use Case*. 2017 Radesc Conference, Geneva, Oct. 17
- Rao Vaddina, K., Brandner, F., Memmi, G., and Jouvelot, P. *Experimental Energy Profiling of Energy-Critical Embedded Applications*. 25th International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2017), Split, Sep.17
- Grumiaux, P.-A., Michon, R., Gallego Arias, H., and Jouvelot, P. *Impulse-Response- and CAD-Model-Based Physical Modeling in Faust*. Linux Audio Conference, St-Etienne, May.17

- Wargnier, P., Fauquet P.-E., Benveniste, S., Jouvelot, P., Rigaud, A.-S., Kemouns, G., and Bloch, F. *Rehabilitation of the psychomotor consequences of elderly fallers: a pilot study to evaluate feasibility and tolerability of virtual reality training using a user-centered designed serious game*. 10th World Conf. on Gerontechnology, Nice, Sep.16
- Orlarey, Y., and Jouvelot, P. *Signal Rate Inference for Multi-dimensional Faust*. 28th Symposium on Implementation and Application of Functional Languages, Leuven, Aug.16
- P. Wargnier , G. Carletti, Y. Laurent-Corniquet, S. Benveniste, P. Jouvelot and A.-S. Rigaud. *Field Evaluation with Cognitively-Impaired Older Adults of Attention Management in the Embodied Conversational Agent Louise*. IEEE 4th International Conference on Serious Games and Applications for Health, Orlando, May.16
- Talpin, J.-O., Jouvelot, P., and Kumar Shukla, S. *Towards Refinement Types for Time-Dependent Data-Flow Networks*. ACM/IEEE MEMOCODE Conference, Austin, Sep.15 (also INRIA Report 8747)
- Khaldi,D., Ge, S., Eachempati, D., Jouvelot,P., and Barbara Chapman. *A Team-based Design Methodology for Memory Hierarchy-Aware Runtime Support in Coarray Fortran*. Int. IEEE Cluster Conference, Chicago, Sep.15
- Gallego Arias, E., Hermant, O., and Jouvelot P. *A Taste of Sound Reasoning in Faust*. Linux Audio Conference, Mainz, Apr.15
- de Vogeleer, K., Memmi, G., Jouvelot, P., and Coelho.F *Modeling the Temperature Bias of Power Consumption for Nanometer-Scale CPUs in Application Processors*. International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation, Samos Island, Jul.14
- Barkati, K., Wang, H., and Jouvelot, P. *Faustine: a Vector Faust Interpreter Test Bed for Multimedia Signal Processing*. FLOPS'14. Kanazawa, Jun.14
- Lopes, P., Benveniste, S., Pino, M., Stefanucci, C., Pisica-Donose, G., Jouvelot, P., Reingewirtz, S., and Rigault, A.-S. *Evaluation en EHPAD de MINDs, un jeu vidéo musical développé pour et avec des personnes souffrant de la maladie d'Alzheimer*. Congrès national Alzheimer 2013, Paris, Dec.13
- Vibert, H.-J., Jouvelot, P., and Pin, B. *Legivoc - connecting law in a changing world*. LVI'2013, Jersey, Sep.13



- Benveniste, S., Jouvelot, P., and Péquignot, R. *The MINWii Project: Renarcissization of Patients Suffering from Alzheimer's Disease Through Video Game-Based Music Therapy*. ICEC'10, Seoul, Sep.10
- Jouvelot, P., and Orlarey, Y. *Dependent Types for Multirate Faust*. SMC'10, Barcelone, Aug.10
- Benveniste, S., Jouvelot, P., Lecourt, E., and Michel, R. *Designing Wiimprovisation for Mediation in Group Music Therapy with Children Suffering from Behavioral Disorders*. ACM SIGCHI IDC'09, Como, Jun.09
- Benveniste, S., Jouvelot, P., and Michel, R. *Wii Game Technology for Music Therapy: A First Experiment with Children Suffering from Behavioral Disorders*. IADIS MCCSIS'08 Int. Conf. Gaming 2008, Amsterdam, Jul.08
- Benveniste, S., and Jouvelot, P. *MAWii : Musicothérapie active avec la Wii*. 19ème Conférence francophone sur l'Interaction homme-machine, Paris, Oct.07
- Denis, G., and Jouvelot, P. *Motivation-Driven Educational Game Design: Applying Best Practices to Music Education*, ACM SIGCHI Advances in Computer Education Conference, Valencia, Jun.05
- Denis, G., and Jouvelot, P. *Building the Case for Video Games in Music Education*, 2nd International Workshop on Game Design and Technology, Liverpool, Nov.04
- Jouvelot, P., with Bonet, N. *Music Composer's Workbench: vers un environnement intelligent de l'enseignement de la composition tonale*. (Music Composer's Workbench: towards an intelligent environment of tonal composition teaching). Journées d'Informatique Musicale, Lalonde-les-Maures, May.98.
- Tang, Y-M., and Jouvelot, P. *Effect Systems with Subtyping*. ACM PEPM, La Jolla, Jun.95
- Tang, Y-M., and Jouvelot, P. *Separate Abstract Interpretation for Control-Flow Analysis*. TACS'94, Sendai (Japon), LNCS 789, Springer Verlag, Apr.94
- Talpin, J-P., and Jouvelot, P. *Compiling FX for the CM-2*. 3rd International Workshop on Static Analysis, LNCS 724, Springer Verlag, Padoue, Sep.93
- Dehbonei, B., and Jouvelot, P. *Semantical Interprocedural Analysis by Partial Symbolic Evaluation*. ACM PEPM Conference, San Francisco, Jun.92

- Talpin, J. P., and Jouvelot, P. *The Type and Effect Discipline*. IEEE Logic In Computer Science Conference, Santa Cruz, Jun.92
- Gifford, D. K., Jouvelot, P., Sheldon, M., and O'Toole, J, Jr. *Semantic File Systems*, ACM SOSP, Pacific Grove, Oct.91
- Irigoin, F., Jouvelot, P., and Triolet, R. *Semantical Interprocedural Parallelization: An Overview of the PIPS Project*, ACM Int. Conf. on Supercomputing, Cologne, Jun.91
- Jouvelot, P., and Gifford, D. K. *Algebraic Reconstruction of Types and Effects*, ACM POPL, Orlando, Jan.91
- Jouvelot, P., and Dehbonei, B. *A Unified Semantic Approach for the Vectorization and Parallelization of Generalized Reductions*, 1989 ACM SIGARCH Int. Conf. on Supercomputing, Crete, Jun.89
- Jouvelot, P., and Gifford, D. K. *Reasoning about Continuations with Control Effects*, ACM SIGPLAN Int. Conf. PLDI'89, Portland, Jun.89
- Jouvelot, P., and Gifford, D. K. *The FX-87 Interpreter*, 1988 IEEE International Conference on Computer Languages, Miami Beach, Oct.88
- Jouvelot, P. *Semantic Parallelization: A Non-Standard Denotational Approach for Imperative Sequential Programs Parallelization*, ACM Computer Science Conference, St-Louis, Feb.87
- Jouvelot, P. *Semantic Parallelization: A Practical Exercise in Abstract Interpretation*, ACM POPL, Munich, Jan.87
- Jouvelot, P. *Parallelization using Semantic Detection of Reductions*, ESOP86, Springer Verlag LNCS 213, Sarrebruck, Mar.86
- Jouvelot, P. *ML: Un Langage de Maquettage ? (ML: A Prototyping Language?)*, AFCET Workshop on New Languages for Software Engineering, Evry, Oct.85
- Jouvelot, P., and Leconte des Floris, D. *A Multi-Level Inference Engine*, COGNITIVA85, CESTA, Paris, Jun.85

### Invited Conferences

- De Vogeleer, K., Rao Vaddina\*, K., Brandner, F., Jouvelot, P., Memmi, G. *Modeling the energy consumption of programs: thermal aspects and Energy/Frequency Convexity Rule*. International Conference on Wireless Communications and Signal Processing (WCSP), Nanjing, Oct.17

- Jouvelot, P., Orlarey, Y., Pottier, L., et Talpin, J.-P. *FEEVER - Faust Environment Everywhere* (presentation and poster). Les rencontres du numérique de l'ANR, Paris, Nov.16
- Wargnier, P., Phuong, E., Benveniste, S., Bloch, F., Kemoun, G., Jouvelot, O., Rigaud, A.-S. *Promenade virtuelle : vers le traitement du syndrome post-chute laide de la ralité virtuelle*. Journes PARACHute, Evry, Nov.16
- De Vogeleer, K., Jouvelot, P., Memmi, G. *Thermal behavior and Energy/Frequency Convexity Rule of Energy Consumption for Programs*. International Conference on Software and Systems Engineering and their Applications (ICSSEA'16), Paris, May.16
- Gallego Arias, E., Pin, B., and Jouvelot, P. *Bringing Theorem Proving to the (sonic) Masses*. Colloque international "Des outils et des méthodes innovantes pour l'enseignement de la musique et du traitement du signal", St-Etienne, Nov.2015
- Irigoien, F., Jouvelot, P., and Triolet, R. *Author retrospective on semantical interprocedural parallelization: an overview of the PIPS project*. Int. Conf. on Supercomputing, Munich, 2014
- Jouvelot, P., et Pin, B. *Plinn : La Description de l'Egypte et Leprince-Ringuet* (Ateliers). 2ème Festival de l'histoire de l'art, Fontainebleau, Juin. 2012
- Jouvelot, P., et Pin, B. *Plinn : La Description de l'Egypte* (Poster et atelier). 1er Festival de l'histoire de l'art, Fontainebleau, May.11
- Jouvelot, P., et Benveniste, S. *Wiimprovisation avec des enfants souffrant de troubles du comportements*. XIXème Journées scientifiques de musicothérapie, Univ. Paris Descartes, Mar.09. Online video available as [http://mediatheque.parisdescartes.fr/article.php?id\\_article=3738](http://mediatheque.parisdescartes.fr/article.php?id_article=3738).
- Jouvelot, P. *Arezzo* (Poster). RIAM Symposium, Rennes, Jun.04

## Workshops

- Rao Vaddina, K., Brandner, F., Memmi, G., and Jouvelot, P. *Towards a Thermally Aware Run-Time CPU Energy Consumption Model*. 5th Workshop on design of Low Power EMbedded Systems, Alghero, Apr.19 (submitted)
- Gkotse, B., Gorine, G., Jouvelot, P., Pezzullo, G., Mateu Suau, I., Ravotti, F. *WP15.5 IRRAD Facility Infrastructure Upgrade & Irradiation Facilities Database* (slides). AIDA-2020 Third Annual Meeting, Bologna, Apr.18

- Gkotse, B., Gorine, G., Jouvelot, P., Pezzullo, G., Mateu Suau, I., Ravotti, F. *WP15.5 CERN Proton Facility Upgrade* (slides). AIDA-2020 Satellite Meeting, Zurich, Jan.18
- Sguerra Massoni, B., Jouvelot, P., and Benveniste, S. *Oblivion Tracking: Towards a Probabilistic Working Memory Model for the Adaptation of Systems to Alzheimer Patients*. 25th User Modeling, Adaptation and Personalization Conf. Adjunct, Bratislava, Jul.17
- Gallego Aria, E., Pin, B., and Jouvelot, P. *jsCoq: Towards Hybrid Theorem Proving Interfaces*. 12th International Workshop on User Interfaces for Theorem Provers, Coimbra, Jul. 16
- Jouvelot, P. *Louise : ECA pour Alzheimer et troubles liés à l'âge*. Journées IMT "Santé, autonomie" (Poster), Paris, Mar.16
- Khaldi, D., Jouvelot, P., Irigoien, F., Ancourt, C., and Chapman, B. *LLVM Parallel Intermediate Representation: Design and Evaluation using OpenSHMEM Communications*. Second Workshop on the LLVM Compiler Infrastructure in HPC, Austin, Nov. 15
- Vibert, H.-J., Pin, B. and Jouvelot, P. *Aligning legivoc Legal Vocabularies by Crowdsourcing*. Language and Semantics Technology for Legal Domain (LST4LD) Workshop, 10th Recent Advances in Natural Processing Conference, Hissar, Sep.15
- Gallego Aria, E., and Jouvelot, P. *Adventures in the (not so) Complex Space*. 7th Coq Workshop, Antibes, Jun.15
- Wargnier, P., Malaisé, A., Jacquemot, J., Benveniste, S., Jouvelot, P., Pino, M., and Rigaud, A.-S. *Towards Attention Monitoring of Older Adults with Cognitive Impairment During Interaction with an Embodied Conversational Agent*. 3rd IEEE International Workshop on Virtual and Augmented Assistive Technology, Arles, Mar.15
- Gallego Arias, E., Hermant, O., and Jouvelot, P. *Verification of Faust Signal Processing Programs in Coq*. First International Workshop on Coq for PL, Mumbai, Jan.15
- Khaldi, D., Shiyaho, G., Eachempati, D., Jouvelot, P., and Chapman, B. *Team-based Design Methodology for Memory Hierarchy-Aware Runtime Support in Coarray Fortran*. 18th Int. Work. on Compilers for Parallel Computing (CPC 2015), London, Jan.15
- Frotier de la Messelière, I., Jouvelot, P., and Talpin, J.-P. *Constraint-Solving Approach to Faust Program Type Checking*. Constraint Programming Meets Verification 2014 Workshop, Lyon, Sep.14

- de Vogeleer, K., Memmi, G., Jouvelot, P., and Coelho, F. *The Energy/Frequency Convexity Rule: Modeling and Experimental Validation on Mobile Devices*, Workshop on Power and Energy Aspects of Computation, Int. Work. PEAC-PPAM2013, Warsaw, Sep.13
- Khaldi, D., Jouvelot, P., Ancourt, C., and Irigoien, F. *SPIRE: A Sequential to Parallel Intermediate Representation Extension*. 17th Int. Work. on Compilers for Parallel Computing (CPC 2013), Lyon, Jul.13
- Khaldi, D., Jouvelot, P., Ancourt, C., and Irigoien, F. *SPIRE: A Sequential to Parallel Intermediate Representation Extension*. 6ème Rencontres de la communauté française de compilation, Annecy, Apr. 13
- Khaldi, D., Jouvelot, P., Ancourt, C., and Irigoien, F. *Task Parallelism and Distribution: An Overview of Explicit Parallel Programming Languages*. 25th Int. Work. on Languages and Compilers for Parallel Computing (LCPC), Tokyo, Aug.12. In Springer Verlag, LNCS, vol. 7760, Apr.13
- Khaldi, D., Jouvelot, P., Ancourt, C., and Irigoien, F. *xDSC: A Resource-Constrained Scheduling Algorithm for Shared and Distributed Memory Systems*. 5ème Rencontres de la communauté française de compilation, Rennes, Jun.12
- Khaldi, D., Jouvelot, P., Ancourt, C., and Irigoien, F. *Task Parallelism and Synchronization: An Overview of Explicit Parallel Programming Languages*. 4ème Rencontres de la communauté française de compilation, St-Hippolyte, Dec.11
- Barkati, K., and Jouvelot, P. *Synchronous Programming in Audio Processing: A Use Case Study*, Int. Work. on Synchronous Programming, Melun, Nov.11
- Benveniste, S., Jouvelot, P., Pin, B., Michel, R., and Lecourt, E. *MAWii: Active Music Therapy for ADHD Children* (Poster), Colloque STIC et santé, Esigetel, Apr.11
- Benveniste, S., Jouvelot, P., Pin, B., Pequignot, R., Boulay, M., Boefsplug, S., and Rigaud, A.-S. *MINWii: A Music Game for Demented Patients* (Poster), Colloque STIC et santé, Esigetel, Apr.11
- Amini, M., Ancourt, C., Coelho, F., Creusillet, B., Guelton, S., Irigoien, F., Jouvelot, P., Keryell, R., and Villalon, P. *PIPS Is not (just) Polyhedral Software: Adding GPU Code Generation in PIPS*, Int. Work. on Polyhedral Compilation Techniques, Chamonix, Apr.11
- Coelho, F., Jouvelot, P., Ancourt, C., and Irigoien, F. *Data and Process Abstraction in PIPS Internal Representation*, Int. Work. on Internal Representation, Chamonix, Apr.11

- Pop, S., Jouvelot, P., and Silber, G-A. *In and Out of SSA: A Denotational Specification*, Static Single-Assignment Form Seminar, Autrans, Apr.09
- Pop, S., Cohen, A., Jouvelot, P., and Silber, G-A. *The New Framework for Loop Nest Optimization in GCC: from Prototyping to Evaluation*, Int. Work. on *Compilers for Parallel Computers*, La Corogne, Jan.06
- Ancourt, C., Coelho, F., Creusillet, B., Irigoien, I., Jouvelot, P., and Keryell, R. *PIPS: A Workbench for Program Parallelization and Optimization* (Poster), European Parallel Tool Meeting, ONERA, Oct.96
- Nielson, F., Cousot, P., Dam, M.F., Degano, P., Jouvelot, P., Mycroft, A., and Thomsen, B. *Logical and Operational Methods in the Analysis of Programs and Systems*. LOMAPS Workshop, Mads Dam (Ed.), Springer, LNCS 1192, Jun.96
- Tang, Y-M., and Jouvelot, P. *Control-Flow Effects for Escape Analysis*, Workshop on Static Analysis, Bordeaux, Oct.92
- Talpin, J. P., and Jouvelot, P. *Polymorphic Type, Region and Effect Inference*, Workshop on Static Analysis of Equat., Funct., and Logic Programs, Bordeaux, Oct.91
- Dornic, V., and Jouvelot, P. *Polymorphic Time Systems for Estimating Program Complexity*, Workshop on Static Analysis of Equat., Funct., and Logic Programs, Bordeaux, Oct.91
- Talpin, J. P., and Jouvelot, P. *Type, Effect and Region Reconstruction and its Applications*, Inter. Workshop on *Compilers for Parallel Computers*, Paris, Dec.90
- Irigoien, F., Jouvelot, P., and Triolet, R. *Overview of the PIPS Project*, Inter. Workshop on *Compilers for Parallel Computers*, Paris, Dec.90
- Jouvelot, P. *Pragmatics in Parallel Functional Programming*, 2-èmes Journées FIRTECH, Paris, Nov.88
- Jouvelot, P., and Gifford, D. K. *Parallel Functional Programming: The FX Project*, Inter. Workshop on *Parallel and Distributed Algorithms*, Bonas, Oct.88, published by North-Holland

## Selected Reports

- Vaddina, K., Brandner, F., Memmi, G., and Jouvelot. *Building the Case for Temperature Awareness in Energy Consumption Models: an Application of the Energy-Frequency Convexity Rule*. arXiv:1811.09285 [cs.AR], Nov. 2018.

- Khaldi, D., Jouvelot, P., Irigoien, F., Ancourt, C., and Chapman, B. *The Incremental Design of Parallel Compiler Intermediate Representations using SPIRE*. CRI-A/574, MINES ParisTech, Aug. 2014.
- Jouvelot, P. *Projet Barracuda: Etude Audio/Vidéo*, Rapport CISI/CNES, Mai.95
- Jouvelot, P. *Analyse Statique Comportementale des Langages de Programmation* (Static behavioral Analysis of Programming Languages), CRI-A/254 (Habilitation Thesis - in French), Ecole des mines de Paris, Dec.93
- Consel, C., and Jouvelot, P. *Separate Polyvariant Binding-Time Analysis*, Oregon Graduate Institute Tech. Rep. CS/E 93-006, Mar.93
- Gifford, D. K., Jouvelot, P., Sheldon, M. A., and O’Toole, J. W. *Report on the FX-91 Programming Language*, MIT/LCS-TR 531, Feb.92
- Jouvelot, P., and Triolet, R. *NewGen: A Language-Independent Program Generator*, CRI-191, Ecole des mines de Paris, Jul.89
- Jouvelot, P., and Gifford, D. K. *Communication Effects for Message-Based Concurrency*, MIT/LCS-TM 386, Mar.89
- Gifford, D. K., Jouvelot, P., Lucassen, J. M., and Sheldon, M. A. *FX-87 Reference Manual*, MIT/LCS-TR 407, Sep.87
- Azegouar, A., Dehbonei, B., Jouvelot, P., and Memmi, G. *Réflexions sur la Vectorisation et la Parallélisation* (Thoughts on Vectorization and Parallelization), Bull DSG/CRG/87011, May.87
- Jouvelot, P. *Parallélisation Sémantique: Une Approche Dénotationnelle Non-Standard pour la Parallélisation de Programmes Impératifs Séquentiels* (Semantic Parallelization: A Non-Standard Denotational Approach for the Parallelization of Imperative Sequential Programs), MASI TechRep 174 (PhD Thesis Paris 6 - in French), Feb.87
- Jouvelot, P. *Evaluation Sémantique des Conditions de Bernstein* (Semantic Evaluation of Bernstein Conditions), MASI TechRep 70, Univ. Paris 6, Feb.85

## Talks

- *Aviation et STEM*. Lyce de Villeneuve-le-roi, mai 2018
- *Dependent Typing for Multirate Faust*. Dedukti Seminar, INRIA Paris, sep.14

- *La musique à l'ère des nouvelles technologies*. Théâtre municipal, Fontainebleau, mar.14. EISTI, Cergy-Pontoise, mar.14. Cordée de la réussite, Fontainebleau, mar.14. Jeudis de Fontainebleau, jun.14. Disponible sur <http://www.cri.mines-paristech.fr/~pj>
- *Evaluation en EHPAD de MINDs, un jeu vido musical développé pour et avec des personnes souffrant de la maladie d'Alzheimer*. P. de Oliveira Lopes, S. Benveniste, M. Pino, D. Stafanucci, G. Pisica-Donose, P. Jouvelot, A.S. Rigaud. Congrès national 2013 Alzheimer, Issy-les-Moulineaux, Déc 13
- *Dependent Vector Types for Data Structuring in Multirate Faust*. Séminaire IRCAM, may.11
- *Les jeux vidéo, ou apprendre en s'amusant*. Les Goûters scientifiques, MINES ParisTech, Fontainebleau, déc.10
- *Images et sons numériques*. Bar des sciences, Viry-Chatillon, oct.06
- *Jeux vidéo et éducation*. TV interview i>TELE, Cité des sciences, Paris, Sunday 1, oct.06
- *Enseignement musical et jeux vidéo*, Pôle de compétitivité Cap Digital, Paris, Juin.06
- *Jeux vidéo et éducation : mythes et réalités*, Ecole des mines de Paris, Jeudis de Fontainebleau, Déc.05 ; *Villette Numérique'06*, Cité des sciences, Paris, Oct.06
- *Algebraic Abstract Effects*, LOMAPS Meeting, Stockholm (S), Juil.96
- *Effect Systems with Subtyping*, LOMAPS Meeting, Cambridge (UK), Juil.95
- *Separate Polyvariant Binding Time Reconstruction*, LOMAPS Meeting, ENS, Paris, Dec.94
- *Separate Abstract Interpretation for Control-Flow Analysis*, LOMAPS Meeting, CRI, Fontainebleau, Jun.94
- *Effect Systems*, pre-LOMAPS Meeting, DAIMI, Aarhus, Oct.93
- *New Applications of Effect Systems*, Ecole Normale Supérieure, May.93; GDR Programmation, Ploubalzanec, Jun.93; ESPRIT Semantique Workshop, London, July.93
- *NewGen*, Lazy Seminar, Bull, Billerica, Massachusetts, Aug.92
- *Effect Systems: Theory and Applications*, Projet SAFIR, Sophia Antipolis, May.92 and GMD, Karlsruhe, Sep.92 and OGI, Portland, Feb.93



- *Semantic File Systems*, Club Calcul Parallèle, Ecole des mines de Paris, Paris, Oct.91 and Lazy Seminar, Bull, Billerica, Massachusetts, Mar.92
- *Effect Systems: II*, Jumelage Meeting, Bell Labs, Murray Hill, Oct.91
- *Polymorphic Time Systems for Estimating Program Complexity*, IFIP WG 2.8, Paris, Apr.91
- *Effect Reconstruction in Polymorphic Effect Systems*. Kansas State University and Yale University, Mar.91
- *Using Type and Effect Systems for Parallelism*. Workshop on Parallelization in the Presence of Pointers and Dynamically-Allocated Objects, Virginia, Mar.90
- *Applications of Polymorphic Effect Systems*. Systems Seminar, Yale University, Mar.90 and Paris 6 University, May.90
- *The FX Language*. MIT Industrial Liaison Program, Mar.89 (Toshiba) and Aug.89 (Matsushita)
- *Decentralized/Large Scale Information Systems*. MIT Industrial Liaison Program, Mar.89 (Bell-Northern Research Ltd.) and Feb.89 (Hewlett-Packard).
- Groupe *Architecture des Ordinateurs*, LITP, Mar.88
- Groupe *Programmation Fonctionnelle et par Objets*, LITP, Mar.88
- Groupe *Calcul Parallèle*, Ecole des mines de Paris, Mar.88
- *Boston Community Information System: Experimental Results*. MIT Industrial Liaison Program, Dec.87 (Bull Corp.)

## 7 Students

### HDR Jury

- Hermant, O. *Complétudes en logique*. U. Paris 7, May.2017

### Postdoc

- Wargnier, P. *Assistant de soin virtuel*. Dec.16-Dec-17
- Gallego Aris, E. *Coq pour Faust*. Nov.14-May.17
- Barkati, K. *Faust vectoriel pour le traitement d'images*, Jul.13-Oct.13

- Benveniste, S. *Validations thérapeutiques de MAWii et MINWii*, Jan.11-Sep.11
- Barkati, K. *Analyse comparative de Faust et des langages musicaux et fonctionnels*, Jan.10-Feb.11

## PhD

### - Advisor

- Aubert, A. *Localisation par ultra-sons*, CIFRE Stimshop, en cours
- Perera, L. *Musicothérapie et musiques carnatiques (ENSAD)*, en cours
- Gkotse, B. *Gestion et contrôle de facilités d'irradiation (CERN)*, en cours
- Sguerra, B. *Personnalisation d'avatar*, en cours.
- Wagnier, P. *Virtual human technologies for cognitively-impaired older adults' care: the LOUISE and Virtual Promenade experiments*. MINES ParisTech, PSL, Dec. 2016 (awarded Armines/MINES ParisTech "Post-doc Innovation" and PSL "Cambridge Business Ignite" funding).
- Saillard, R. *Vérification de typage pour le lambda-Pi-Calcul Modulo : théorie et pratique*, MINES ParisTech, Sep. 2015.
- de Vogeleer, K. *La loi de convexité énergie-fréquence de la consommation des programmes : modélisation, thermosensibilité et applications*, TELECOM ParisTech (co-adviser), Sep. 2015 (nominated for Best Telecom ParisTech PhD Award).
- Benveniste, S. *La conception incrémentale de jeux sérieux musicaux pour la santé : théorie et application au traitement des troubles du comportement et de la maladie d'Alzheimer*, MINES ParisTech, Dec.10 (Prize Charles Foix 2011).
- Denis, G. *Jeux vidéo éducatifs et motivation : application à l'enseignement du jazz*, Ecole des mines de Paris, Dec.06 (Published at Presses de l'Ecole des mines de Paris, 2008).
- Tang, Y-M. *Implémentation Efficace des Langages Fonctionnels*, Ecole des mines de Paris et Université Paris 6, Mar.94
- Talpin, J-P. *Aspects Théoriques et Pratiques de l'Inférence de Type et d'Effet*, Ecole des mines de Paris et Université Paris 6, May.93
- Dornic, V. *Analyse de Complexité des Programmes: vérification et inférence*, Ecole des mines de Paris et Université Paris 6, Jun.92 (Thesis co-Advisor)

- **Certifier**

- Legouverneur, G. *Silver Games : Etude des facteurs humains dans le développement de jeux vidéo adaptés aux personnes âgées*, Université Paris Descartes, Nov.14
- Millon, E. *Analyse de securit de logiciels systme par typage statique : Application au noyau Linux*, Université Pierre et Marie Curie, Jul.14
- Soulan, S. *Développement de la scatterométrie dynamique pour le suivi en temps réel de procédés : application à la microélectronique*, Université Joseph Fourier-Grenoble I, Dec.08
- Hornof, L. *Analyses statiques pour la spécialisation effective de programmes réalistes*, IRISA, Rennes I, Jul.97
- Miniussi, A. *Amélioration des Performances d'un Système de Compilation d'Equations*, Bordeaux I, Jun.97
- Fontalbe, P. *Evaluation Partielle Symbolique*, Université Paris 6, Avr.96
- Bennani, N. *Proposition d'un modèle de programmation et d'implémentation parallèle d'un langage fonctionnel sans variables*, Lille, Nov.94
- Dehbonei, B. *Génération de Code et Analyse Interprocédurale au sein d'un Environnement de Programmation Parallèle*, Paris 6, Dec.90 (Co-Certifier)

- **Member**

- Cheng, T. *Analyse statique d'applications tableurs*, Ecole polytechnique, Sep.15
- Ngo, B. H. *Système de fichiers sémantique basé sur le contexte*, TELECOM & Management SudParis, Jun.09 (Jury President)
- Huggins, K. *LINEA : une méthode de calcul par graphes de la proximité des objets sur Internet*, Ecole des mines de Paris, Apr.05
- Charles, C. *SearchXQ : une méthode d'aide à la navigation fondée sur Omega-means, algorithme de classification non-supervisée. Application sur un corpus juridique francais*, Ecole des mines de Paris, Dec.04
- Redon, X. *Détection et exploitation des récurrences dans les programmes scientifiques en vue de leur parallélisation*, Paris 6, Jan.95
- Ericsson-Zenith, S. *Process Interaction Models*, Paris 6, Jui.92
- Tawbi, N. *Parallélisation Automatique : Estimation des Durées d'Exécution et Allocation Statique de Processeurs*, Paris 6, Apr.91

## Master

- Benamara, A. *Working Memory*. U. Paris 6, advisor Bruno Sguerra, Jan.-JuL.2018
- Rolland, A. *Service design pour LOUISE*. Ensad, advisor Pierre Wagnier, Oct.-Dec.2017
- Ribstein, S. *Coq, Faust et Wagner*. U. Paris 7, advisor Emilio Gallego Arias, Avr.2017-Sep.2017
- Nguyen, J. *Interactions pour LOUISE*. U. Paris Saclay, advisor Pierre Wagnier, Avr.-Sep.2017
- Wang, H. *Un interpréteur OCaml pour Faust*. Ecole centrale de Marseille, Tsinghua University, advisor Karim Barkati, Avr.2013-Aut.2013
- Darmoul, R. *Optimisations Faustiennes : analyse, vectorisation et parallélisation de programmes FAUST via PIPS*, Inst. sup. d'inf., U. de Tunis El Manar, Sep.10
- Boussema, A. *Développement d'un prototype de jeu vidéo multi-utilisateurs dédié aux personnes handicapées*, Inst. sup. d'inf., U. de Tunis El Manar, Sep.08
- Saito, A. *CNPMusic Business Development*, Entrepreneurial Field Studies, MBA INSEAD, Jul.08
- Macerot, G. *Cha-Luva Swing Festival*, DESS Jeux vidéo et média interactifs, Angoulême, Dec.04
- Segard, J. *Vers un enseignement à distance de la musique*, Université Bordeaux I, Aou.00
- Vouillon, J. *Systèmes de Types et d'Effets par Interprétation Abstraite*, ENS Ulm, Jui.95

## Bachelor

- Grumiaux, P.-A., *Moélisation physique instrumentale en Faust*, EC Lille, advisor Emilio Gallego Arias, Sep.16
- Mortabit, Z. *Compilation de Faust en Wagner*, Polytech Clermont-Ferrand, Aug.16
- Surée, A. *Analyse de types pour Faust multirate*, ENS Ulm, Sep.11

## 8 Teaching

- Advanced Java Programming (MINES ParisTech, 17)
- Introduction to Java Programming (MINES ParisTech, 15)
- Computer Science Fundamentals (Advanced course, Ecole des mines de Paris, since 04)
- Computer Music (Mastère mines and Ecole des mines de Paris, since 99)
- Digital Sound (IMAC, Paris 2, 96 to 99)
- Text, Sound and Image Compression (IMAC, Paris 2, 93 to 02; Ecole des mines de Paris, 93 to 98; GRECO Informatique, CNIT, May.96; Mastère HEC and Ecole des mines de Paris, 98 to 04)
- Theoretical Computer Science (IMAC, Paris 2, 94; Mastère mines, Oct.98)
- *NewGen* (GRECO Informatique, CNIT, Nov.91)
- Complexity Theory (Ecole des mines de Paris, 89)
- Semantics of Programming Languages (Ecole des mines de Paris, 88)
- Functional Programming (Ecole des mines de Paris, 88)
- Artificial Intelligence (Ecole des mines de Paris, 86)
- Teaching Assistant “Unix Kernel” (Paris 6, 83 to 85)
- Artificial Intelligence and Expert Systems (CCETT, 85)
- Operating Systems (ENST, 84)

## 9 Other Activities

- Airplane private pilot (France, USA)
- Music Composition: Narcis Bonet’s classes on harmonical analysis, harmony and counterpoint at *Schola Cantorum*, Paris, 95 to 99
- Classical Music: piano, synthesizer
- Sports: ski, walk
- Literature: novels, philosophy, theoretical physics