

# Clément Aubert

## Curriculum vitæ

Computer Science Department  
Appalachian State University  
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## Research Interests

Programming languages, Type theory, Complexity, Automata, Concurrent systems, Category theory, Proof theory

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## Current & Previous Positions, Education

- 2015–present **Post Doctoral Researcher & Instructor**, *Appalachian State University, Computer Science Department*, funded by the NSF grant 1420175 and the College of Arts & Science. Supervisor: Patricia Johann.
- 2014–2015 **Post Doctoral Researcher & Instructor**, *INRIA, SPADES – Université Paris-Est (UPEC, Paris 12), Laboratoire d’Algorithmique, Complexité et Logique (LACL)*, funded by the ANR Rever & Faculté des Sciences et technologie. Supervisor: Daniele Varacca.
- 2013–2014 **Post Doctoral Researcher**, *CNRS – Aix-Marseille Université, Institut de Mathématiques de Marseille (I2M) – UMR 7373 CNRS, Logique de la Programmation (LDP) team*, funded by the ANR ReCré. Supervisor: Myriam Quatrini.
- 2010–2013 **Ph.D. in Computer Science, with the highest honours (“mention Très honorable”)**, “*LINEAR LOGIC AND SUB-POLYNOMIAL CLASSES OF COMPLEXITY*”, *École Doctorale Galilée (146) – Université Paris 13 – Laboratoire d’Informatique de Paris Nord (LIPN), UMR 7030*, Supervisors: Stefano Guerrini and Virgile Mogbil.
- 2009–2010 **M.S. in Mathematics, cum laude**, *Université Paris 7 – Denis Diderot*. “*Mathematical Logic and Computer Science Foundations*” (LMFI), specializations in Proof Theory (P.-L. Curien) and Lambda-Calcul (T. Joly)
- 2007–2010 **B.S. in Philosophy**, *Université Paris 1*. “*Logic, Philosophy, History and Sociology of Sciences*” (LOPHISS), specialization in Logic
- 2005–2006 **Three-years Degree in History**, *Université de Reims*.
- 2000–2005 **Baccalauréat in sciences with distinction in German, then Khâgne & Hypokhâgne (Preparatory classes to the grandes écoles, focused on Humanities)**, *Jean-Jaurès – Reims*. Specialization in Physics, History, Geography and Philosophy

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## Teaching Experiences

- ASU **CS1440 Computer Science I**, in Java, Beginner, Fall 2016
- UPEC **Initiation to Algorithm and Complexity**, in C, Intermediate, Spring 2015  
**Imperative Programming**, in C, Beginner, Fall 2014
- Paris 13 **Databases**, using SQL, Intermediate, Spring 2013  
**System Administration & Network**, Intermediate, Spring 2012 & Spring 2013  
**Software Engineering**, Beginner, Spring 2011 & Spring 2012  
**Algorithms and Programming**, in C, Beginner, Fall 2011  
**New Ways of Learning Mathematics**, Beginner, Fall 2010
- 📄 [lacl.fr/~caubert/teaching\\_effectiveness.pdf](http://lacl.fr/~caubert/teaching_effectiveness.pdf)

## Publications (selection)

[lacl.fr/~caubert/#publications](https://lacl.fr/~caubert/#publications)

### Refereed Journals

- 2016 **Aubert, C.** and I. Cristescu. “Contextual equivalences in configuration structures and reversibility”. In: *Journal of Logical and Algebraic Methods in Programming*. ISSN: 2352-2208. DOI: 10.1016/j.jlamp.2016.08.004.
- 2016 **Aubert, C.** and T. Seiller. “Characterizing co-NL by a group action”. In: *Mathematical Structures in Computer Science* 26, pp. 606–638. ISSN: 1469-8072. DOI: 10.1017/S0960129514000267.
- 2016 **Aubert, C.** and T. Seiller. “Logarithmic space and permutations”. In: *Information & Computation* 248. Communication at DICE 2013 and LCC 2013, pp. 2–21. ISSN: 0890-5401. DOI: 10.1016/j.ic.2014.01.018.

### Selective Conferences

- 2016 **Aubert, C.**, M. Bagnol, and T. Seiller. “Unary Resolution: Characterizing Ptime”. In: *Foundations of Software Science and Computation Structures (FOSSACS 2016)*. Vol. 9634. Lecture Notes in Computer Science. Springer, pp. 373–389. DOI: 10.1007/978-3-662-49630-5\_22. Acceptance rate: 27.4%.
- 2014 **Aubert, C.** and M. Bagnol. “Unification and Logarithmic Space”. In: *Rewriting and Typed Lambda Calculi (RTA-TLCA 2014)*. Vol. 8650. Lecture Notes in Computer Science. Springer, pp. 77–92. DOI: 10.1007/978-3-319-08918-8\_6. Acceptance rate: 35% (31/87).
- 2014 **Aubert, C.**, M. Bagnol, P. Pistone, and T. Seiller. “Logic Programming and Logarithmic Space”. In: *12th Asian Symposium on Programming Languages and Systems (APLAS 2014)*. Vol. 8858. Lecture Notes in Computer Science. Springer, pp. 39–57. DOI: 10.1007/978-3-319-12736-1\_3.

### Workshops

- 2015 **Aubert, C.** and I. Cristescu. “Reversible Barbed Congruence on Configuration Structures”. In: *8th Interaction and Concurrency Experience (ICE 2015)*. Vol. 189. Electronic Proceedings in Theoretical Computer Science, pp. 68–95. DOI: 10.4204/EPTCS.189.7.
- 2011 **Aubert, C.** “Sublogarithmic uniform Boolean proof nets”. In: *Proceedings Second Workshop on Developments in Implicit Computational Complexity*. Ed. by J.-Y. Marion. Vol. 75. Electronic Proceedings in Theoretical Computer Science, pp. 15–27. DOI: 10.4204/EPTCS.75.2.

## Reviews and PC





- PC member
- Logic and Computational Complexity (LCC 2016)
  - Developments in Implicit Computational Complexity (DICE 2015)

- Reviewer for
- Conferences**
- the 27th International Conference on Concurrency Theory (CONCUR 2016)
  - Conference on Foundations of Software Science and Computation Structures (FoSSaCS 2015 and 2016)
  - Automata, Languages and Programming (ICALP 2015)
  - the Italian Conference on Theoretical Computer Science (ICTCS 2014)
  - the 28th symposium on Implementation and Application of Functional Languages (IFL 2016)
- Journals**
- “Journal of Logical and Algebraic Methods in Programming”
  - “Mathematical Structures in Computer Science”
  - “Information & Computation”
- Societies**
- the American Mathematical Society
  - zbMATH

## Grants

- 2016, \$1k Research Development Travel Grant from the Appalachian State University. Sole PI.  
 2014, 1.5k€ PICS: Logique linéaire et applications award to visit U. Dal Lago in Bologna.  
 2011, 0.5k€ GDR IM's "Visiting PhD student" program. PI shared with another PhD student




## Languages

- French  Mother tongue, skills in typography  
 English  Perfectly read and understood, fluent speaker, TOIEC's score: 975  
 German  Goethe Institut's *Zertifikat Deutsch* in 2002, specialization and distinction in high school  
 Russian  Basic concepts

## Computer Skills

- O.S.** Linux, Mac OS, Windows **LaTeX** Daily use, drawings with TikZ  
**Prog.** Java, C, SQL, shell scripts, notions in COQ and ProLog **Web dvpment** HTML5, CSS3, W3C's specifications, WAI, PHP, MySQL

## International Visits & Exchanges

- Aug. 2014  Visit to J. G. Simonsen to work on Implicit Computational Complexity and Algebraic characterizations of complexity classes – Datalogisk Institut, Copenhagen, funded by the COLA Project (1 week)  
 Nov. 2012  Visit to U. Dal Lago to work on Quantum Calculus, Geometry of Interaction and Implicit Complexity – FoCUS, Bologna, funded by the PICS project Logique linéaire et applications (2 weeks)  
 Mar. 2011  Exchange with T. Seiller to work on Operator algebra and Complexity – Institut Mathématiques de Luminy, Université d'Aix-Marseille, funded by the GDR-IM (1 week)

## Invited Talks (selection)

-  [lacl.fr/~caubert/#exposes](http://lacl.fr/~caubert/#exposes)
- 2015  Elica meeting – Laboratoire d'Informatique de Paris Nord (LIPN) – Université Paris 13  
 2014  Algorithmic, Complexity and Logic Laboratory (LACL) seminar – Université Paris-Est Créteil (UPEC)  
 Logic, Computer Science, and Discrete Mathematics (LIMD) seminar – Laboratoire de Mathématiques de l'Université de Savoie (LAMA), Université de Savoie  
 Seminar of the *Methodes formelles* team – Laboratoire lorrain de recherche en informatique et ses applications (Loria), Université de Lorraine  
 2013  International Workshop *Logic and Computational Complexity* (LCC) – Turin  
 Complexité, Logique et Informatique (CLI) seminar – Équipe de Logique Mathématique, Université Paris 7  
 Young Researchers' seminar – LIPN  
 2012  9th project meeting of the ANR Implicit Computational Complexity, Concurrency and Extraction (Complice) – LIPN  
 LDP seminar – Institut de Mathématiques de Luminy (IML), Aix-Marseille Université  
 Foundations of Component-based Ubiquitous Systems (FoCUS) Meeting – Università Di Bologna  
 Logic and Interactions 2012 – Centre International de Rencontres Mathématiques (CIRM)  
 2011  International Workshop Second Workshop on Developments in Implicit Computational Complexity (Dice 2011) – Saarbrücken, ETAPS 2011  
 Multidisciplinary research group *Vérité et preuves* – Université Paris 1

■ 16th meeting of the Logique, Algèbre et Calcul (LAC) group – Preuves, Programmes, Systèmes (PPS), Université Paris 7

## Memberships

*ANR-funded projects correspond to NSF-funded projects, and involvement in ANR projects implies active scientific collaborations, travel funding, invitation to School and scientific discussions, etc.*

- Productive member
- ANR Expanding Logical Ideas for Complexity Analysis (ELICA)
  - ANR Realizability for classical logic, concurrency, references and rewriting (Recré)
  - ANR Logic and Geometry of Interaction (Logoi)
  - ANR Implicit Computational Complexity, Concurrency and Extraction (Complice)
  - Ph.D. Students working group *Verité et preuves*
  - Groupe de Recherche Informatique Mathématique (GDR IM)
  - ANR Programming reversible and dependable systems (Rever)
- Attending member
- ANR Computing with QUAntitative Semantics (Coquas)
  - ANR Parallel and Distributed Analysis (Panda)
  - Curry-Howard: Logic and Computation (Chocola) meetings

## Summer & Winter Schools

- 2016-03-13 ■ **From Theory to Practice of Algebraic Effects and Handlers**, Dagstuhl Seminar 16112, 6 days, with lectures by A. Bauer, A. Filinski, G. Plotkin, A. Simpson, ...
- 2014-02-10 ■ **Mathematical Structures of Computation, Concurrency, Logic and Types** – Lyon, with lectures by U. Dal Lago, M. Hofmann, L. Ong, D. Sandiorgi, ...
- 2014-04-07 ■ **Sémantique des preuves et des programmes et formalisation des mathématiques** – Luminy, with lectures by A. Miquel, T. Coquand, P.-L. Curien, ...
- 2012-06-05 ■ **Réalisabilité à Chambéry #5** on Realizability – Bourget du Lac, with lectures by A. Miquel, M. Hofmann, J.-L. Krivine, H. Herbelin, ...
- 2011-11-07 ● **Workshop on Linear Logic** on Geometry of Interaction, Traced Monoidal Categories and Implicit Complexity – Kyoto, with lectures by J.-Y. Girard, S. Guerrini, U. Dal Lago, ...
- 2011-06-16 ■ **10th Annual Oregon Programming Languages Summer School** on Types, Semantics and Verification – Eugene, with lectures by H. Herbelin, X. Leroy, P. Melliès, B. Pierce, D. Scott, ...
- 2011-03-17 ■ **École d'été de l'ANR Logoi** on Geometry of Interaction, Operator Algebra – Carry-le-Rouet, with lectures by P.-L. Curien and J.-Y. Girard.

## Services

- 2012 & 2016 Responsible for courses: composing and grading quizzes, homeworks and exams, coordination with the department, leading role in the end-term evaluation.
- 2012 Invited by the Evaluation Agency for Research and Higher education (AERES) to the panel of representative Ph.D. students during the evaluation of the Laboratoire d'Informatique de Paris Nord (LIPN), Paris 13.
- 2014 Guest invited at a mid-term meeting with the Agence Nationale de la Recherche (ANR) regarding the Logic and Geometry of Interaction (Logoi) project.

## Civic Engagement

- micr0lab Founding member, member of the board, webmaster, and active participant in this ten-member non-benefit association that exists since 2011.
- La goutte d'Ordi Volunteer during a two years period, three to six hours per week: teaching classes and lab sessions for newly arrived immigrants, providing material to bridge the digital divide.