

Jill-Jênn Vie

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Interests

- Educational Data Mining, Crowdsourcing
- Optimizing Human Learning
- Recommender Systems, Cold-start

Skills

- Programming: Python, OCaml, R, C++
- Computing: numpy, scipy, sklearn, tf, PyTorch
- Web: Django, HTML5, JS, Vue.js, PHP, PostgreSQL

Experience

Apr 2017 – current

Postdoctoral Researcher at RIKEN Center for Advanced Intelligence Project (AIP), Tokyo, Japan, under the supervision of Prof. Hisashi Kashima. From April 2019: in RIKEN Artificial Intelligence Research Unit, Kyoto University campus.

Apr 2019 – Jul 2019 Visiting Scholar at LEARN lab, New York University. Working with Prof. Yoav Bergner.

Oct 2016 – current Consulting at the French Ministry of Education.

PIX Project: certification of digital competencies. <https://pix.fr>

Education

Feb 2014 – Dec 2016 PhD in Computer Science, Université Paris-Saclay, France

Adaptive Testing using Cognitive Diagnosis for Large-Scale Learning

under the supervision of Yolaine Bourda, Fabrice Popineau, Éric Bruillard at CentraleSupélec & ENS Paris-Saclay.

PhD Prize: K2, section “Machine Learning & Data Science”

Jul 2014 Agrégation de mathématiques, French diploma for higher education teaching.

Sep 2013 – May 2014 MSc of Teaching in Mathematics (Training for Higher Education Teaching).

Sep 2012 – Sep 2013 Started a MSc of Mathematics (Maths, Vision, Machine Learning). Validated 45 ECTS.

Sep 2009 – Sep 2012 MSc of Computer Science (Parisian Master of Research in Computer Science).

Sep 2010 Normalien at ENS Cachan, former ENS Paris-Saclay (admitted 2nd).

Sep 2008 – Sep 2009 BSc of Computer Science at ENS de Lyon.

Research Internships

2016 PIX: Certification of Digital Competencies with Benjamin Marteau, French Ministry of Education, Paris.

2013 Search Through Comparisons with Laurent Massoulié, Inria Microsoft-Research Centre, Palaiseau.

2011–2012 Leakage-Resilient Spatial Encryption with Michel Abdalla, ENS Paris.

2010 Computerized Adaptive Testing with WIMS, short internship with Jean-Pierre Boudine, Marseille.

2010 Coupling Time in Markovian Queueing Networks, with Bruno Gaujal, Inria Grenoble.

2009 Around the Penrose Tiling, short internship with Thomas Fernique, LIF, Marseille.

Teaching Experience

2016 Writing CS mock exam materials for preparing the CAPES: French Math teaching competitive exam.

2016 Teaching Assistant of Algorithms in CentraleSupélec, campus of Châtenay-Malabry.

2015–2016 Coach of the ENS Paris-Saclay team at the ACM International Collegiate Programming Contest.

2015 Supervisor of two interns at Mangaki (Alexis Rivière & Dylan Tanguy).

2014 Co-Founder and Trainer at **Girls Can Code!**, a programming summer school for K-12 girls.

2012–2013 Teaching Practical Lessons of Caml Light, Lycée Louis-le-Grand, Paris.

2009–2011 Oral examiner in Mathematics, Lycée Sainte-Marie & du Parc, Lyon, Lycée Condorcet, Paris.

Publications

Journal Articles

- [1] Jill-Jënn Vie, Fabrice Popineau, Éric Bruillard, and Yolaine Bourda. “Automated Test Assembly for Handling Learner Cold-Start in Large-Scale Assessments”. In: *International Journal of Artificial Intelligence in Education* (2018), pp. 1–16. URL: <https://rdcu.be/G30H>.
- [2] Jill-Jënn Vie, Fabrice Popineau, Éric Bruillard et Yolaine Bourda. « Utilisation de tests adaptatifs dans les MOOC dans un cadre de crowdsourcing ». In : *Revue STICEF, Volume 24, numéro 2, 2017* (2018). ISSN : 1764-7223. DOI : [10.23709/sticef.24.2.6](https://doi.org/10.23709/sticef.24.2.6).

Books

- [1] Christoph Dürr and Jill-Jënn Vie. *Efficient Programming with Python. 128 Essential Algorithms for Coding Test Prep*. Cambridge University Press, 2019.
- [2] Christoph Dürr and Jill-Jënn Vie. 高效算法. 竞赛、应试与提高必修 128 例. 人民邮电出版社, 2018.
- [3] Fabrice Popineau, Michal Valko, and Jill-Jënn Vie, eds. *Proceedings of the 1st International Workshop eliciting Adaptive Sequences for Learning (WeASeL)* (Montréal, Canada, June 12, 2018). CEUR Workshop Proceedings 1. 2018. URL: <https://humanlearn.io/proceedings/vol-1/>.
- [4] Ismael Belghiti, Roger Mansuy, and Jill-Jënn Vie. *Les clés pour l’info : ENS et Agrégation (option D)*. Calvage et Mounet, 2016.
- [5] Christoph Dürr et Jill-Jënn Vie. *Programmation efficace. Les 128 algorithmes qu’il faut avoir compris et codés dans sa vie*. Ellipses, 2016.

Chapters

- [1] Jill-Jënn Vie, Fabrice Popineau, Yolaine Bourda, and Éric Bruillard. “A Review of Recent Advances in Adaptive Assessment”. In: *Learning analytics: Fundamentals, Applications, and Trends*. Springer, 2017, pp. 113–142.

Conference Papers

- [1] Benoît Choffin, Fabrice Popineau, Yolaine Bourda, and Jill-Jënn Vie. “DAS3H: Modeling Student Learning and Forgetting for Optimally Scheduling Distributed Practice of Skills”. In: *Proceedings of the Twelfth International Conference on Educational Data Mining (EDM 2019)*. Best Full Paper Award. 2019, pp. 29–38. URL: <https://arxiv.org/abs/1905.06873>.
- [2] Jill-Jënn Vie and Hisashi Kashima. “Knowledge Tracing Machines: Factorization Machines for Knowledge Tracing”. In: *Proceedings of the 33th AAAI Conference on Artificial Intelligence*. (Acceptance rate: 1150/7095 = 16%) 2019, pp. 750–757. URL: <https://arxiv.org/abs/1811.03388>.
- [3] Sein Minn, Yi Yu, Michel Desmarais, Feida Zhu, and Jill-Jënn Vie. “Deep Knowledge Tracing and Dynamic Student Classification for Knowledge Tracing”. In: *Proceedings of the 18th IEEE International Conference on Data Mining*. 2018, pp. 1182–1187. URL: <https://arxiv.org/abs/1809.08713>.
- [4] Jill-Jënn Vie, Fabrice Popineau, Yolaine Bourda, and Éric Bruillard. “Adaptive Testing Using a General Diagnostic Model”. In: *European Conference on Technology Enhanced Learning*. (Acceptance rate: 26/145 = 18%) Springer. 2016, pp. 331–339.
- [5] Michel Abdalla and Jill-Jënn Vie. “Leakage-Resilient spatial encryption”. In: *International Conference on Cryptology and Information Security in Latin America*. Springer. 2012, pp. 78–99.

Other publications

- [1] Jill-Jënn Vie. “Deep Factorization Machines for Knowledge Tracing”. In: *Proceedings of the Thirteenth Workshop on Innovative Use of NLP for Building Educational Applications*. 2018, pp. 370–373. URL: <https://arxiv.org/abs/1805.00356>.
- [2] Jill-Jënn Vie, Fabrice Popineau, Françoise Tort, Benjamin Marteau, and Nathalie Denos. “A Heuristic Method for Large-Scale Cognitive-Diagnostic Computerized Adaptive Testing”. In: *Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale*. ACM. 2017, pp. 323–326. URL: <https://github.com/jilljenn/las2017-wip/>.
- [3] Jill-Jënn Vie, Florian Yger, Ryan Lahfa, Basile Clement, Kévin Cocchi, Thomas Chalumeau, and Hisashi Kashima. “Using Posters to Recommend Anime and Mangas in a Cold-Start Scenario”. In: *2017 14th IAPR International Conference on Document Analysis and Recognition (ICDAR) – Second International Workshop on Comics Analysis, Processing and Understanding*. Vol. 03. Nov. 2017, pp. 21–26. URL: <https://arxiv.org/abs/1709.01584>.

- [4] Jill-Jénn Vie, Fabrice Popineau, Jean-Bastien Grill, Éric Bruillard, and Yolaine Bourda. “Predicting Performance over Dichotomous Questions: Comparing Models for Large-Scale Adaptive Testing”. In: *8th International Conference on Educational Data Mining*. 2015.
- [5] Jill-Jénn Vie, Fabrice Popineau, Jean-Bastien Grill, Éric Bruillard et Yolaine Bourda. « Prédiction de performance sur des questions dichotomiques : comparaison de modèles pour des tests adaptatifs à grande échelle ». In : *Atelier Évaluation des Apprentissages et Environnements Informatiques*. 2015.

Preprints

- [1] Jill-Jénn Vie and Hisashi Kashima. “Encode & Decode: Generalizing Deep Knowledge Tracing and Multidimensional Item Response Theory”. URL: http://jiji.cat/bigdata/edm2019_submission.pdf.
- [2] Jill-Jénn Vie and Hisashi Kashima. “Fast Variational Learning of Factorization Machines for Large-Scale Recommender Systems”. URL: <http://jiji.cat/bigdata/vie2019vfm.pdf>.

Dissemination of scientific knowledge

- [1] Jill-Jénn Vie. “Comment coder un système de recommandation en Python : l’exemple de Mangaki”. In: *GNU/Linux Magazine Hors-Série* 94 (2018).
- [2] Jill-Jénn Vie. “Grolopin et les plans projectifs finis”. In: *Tangente Hors-Série* 52 (2014), pp. 128–131.
- [3] Jill-Jénn Vie. “Langages rationnels et automates finis”. In: *Bibliothèque Tangente* 52 (2014), pp. 52–55.
- [4] Jill-Jénn Vie, Alexandre Talon, and Arthur Charguéraud. “Les concours informatiques destinés aux jeunes”. In: *Tangente Hors-Série* 52 (2014), p. 22.
- [5] Jill-Jénn Vie. “Un algorithme de composition musicale”. In: *Quadrature* 72 (2009), pp. 10–14.

Professional Affiliations & Activities

Organizer *Optimizing Human Learning 2018 & 2019: Workshop eliciting Adaptive Sequences for Learning (WeASeL), collocated with Intelligent Tutoring Systems 2018 & 2019*.

Program Committee EDM 2019 (demos & posters).

Reviewer *IEEE Transactions on Learning Technologies, Journal of Educational Data Mining, SAGE Open*.

Organizations & Awards

2019 Best Full Paper Award of the 12th Educational Data Mining conference, together with Benoît Choffin, Fabrice Popineau, Yolaine Bourda.

April 2017 With the **Etalab Task Force**, the Prime Minister’s Office for open data: contributing to a report of recommendations and requirements of the algorithm that affects students to higher educational institutions.

2016–present President of Mangaki, a non-profit organization that promotes Japanese culture through an open-source recommender system in 5 languages. **Japanese Cultural Institute Prize 2016 winner**.

2015–2016 Director and Writer of *La Faute à l’algo* with Michel Blockelet, French TV sci-fi show about algorithms that take control of our lives. Broadcast on the channel Nolife.

2011–2013 President of Prologin, a non-profit organization that organizes a French national programming contest every year (similar to Google Code Jam, Facebook Hacker Cup). **Google RISE Award 2014**.

- 5th prize over 54 teams at Google Hash Code, operations research contest, 2014
- 2nd prize at French conservatory of music, piano contest, 2006
- **Hobbies:** Piano concerts, Asian movies, animated features, French spelling, 筒井康隆

Languages

French native **English** fluent **Japanese** intermediate **Spanish** intermediate **Mandarin** beginner