Alexandre Decan

Data Scientist – Docteur en Sciences

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Né le 29/01/85 à Anderlecht

Expérience professionnelle

Depuis 10/2022	**Chercheur qualifié F.R.S.-FNRS**, *UMONS*, Mons. Service de Génie Logiciel Université de Mons – UMONS
De 02/2015 à 09/2022	**Chercheur post-doctorant**, *UMONS*, Mons. • Automated Assistance for Developing Software in Ecosystems of the Future – SECO-ASSIST. Excellence of Science F.R.S. FNRS - FWO-Vlaanderen. Service de Génie Logiciel, depuis 08/2018. • Socio-Technical Methodology and Analysis of Software Ecosystem Health – SECOHealth. F.R.S. FNRS - FRQ Québec-Wallonie. Service de Génie Logiciel, 10/2017 - 07/2018. • Data quality, data provenance and big data – FEDER-IDEES. Fonds Européen de Développement Régional. Service des Systèmes d'Information, 01/2017 - 07/2021. • Ecological Studies of Open Source Software Ecosystems – ECOS. Actions de Recherche Concertées (ARC). Services de Génie Logiciel et d'Écologie Numérique des Milieux Aquatiques, 02/2015 - 07/2017. • Assistant temporaire en Réseaux et Télécommunications, 2016.
De 10/2014 à 01/2015	**Analyste fonctionnel**, *Smals*, Bruxelles. Analyste fonctionnel dans le secteur Soins et Santé.
De 10/2007 à 09/2014	**Assistant de recherche**, *UMONS*, Mons. • Data-Intensive Software System Evolution. Collaborateur volontaire F.R.S.-FNRS. Service de Génie Logiciel, 2013-2014. • Recherche et développement dans les systèmes d'information. Réalisation d'une thèse sur les problématiques de data quality et de data integrity. Service des Systèmes d'Information, 2007-2013. • Enseignement de cours de programmation, d'algorithmique, de bases de données, de datamining et de datawarehouse (cours de jour et horaires décalés) ; direction et encadrement de mémoires étudiants, 2007-2014.
De 09/2013 à 01/2014	**Formateur-enseignant**, *Eurometropolitan e-Campus*, Tournai. Formateur-enseignant en business intelligence dans le cadre du Certificat d'Université d'Executive Master en e-Entrepreneurship.
De 09/2006 à 06/2007	**Élève-assistant**, *UMONS*, Mons. Fonction d'élève-assistant pour les cours de programmation et d'algorithmique.
07/2006	**Stage en entreprise**, *S.A. ADLC*, Péruwelz. Stage et réalisation d'un outil de suivi de commandes avancé pour l'intranet.

Études

2007 à 2013 **Docteur en Sciences**, *UMONS*, Mons.
Soutenance d'une thèse intitulée "*Certain Query Answering in First-Order Languages*".

2007 à 2009 **Formation doctorale**, *UMONS*, Mons.

2003 à 2007 **Licence en Sciences Informatiques**, *UMH*, Mons.
- Projet d'année : "*Synthèse vocale*" – traitement du signal en C/OCaml,
- Mémoire de fin d'études : "*Distributed Backup System*" – développement réseau/P2P en Java.

1997 à 2003 **Secondaire général**, *Collège Saint Julien*, Ath.
Diplôme d'Honneur en option mathématiques et langues.

Compétences informatiques

Fouille de données.
Expert dans l'analyse, le traitement et la fouille de données (data mining, data quality, data cleaning, machine learning). Maitrise de pandas, scipy, sklearn, matplotlib, seaborn, Jupyter.

Base de données.
Maitrise de SQL, X-path, du XSLT, XML Schema et XQuery. Expérience pratique en PostgreSQL, SQLite, MySQL/MariaDB, Redis, MongoDB.

Développement.
Expert Python. Expérience de développement en Java, Kotlin, JavaScript, C et PHP ; développement mobile & web. Expérience open source (mainteneur de projets & contributeur).

Gestion de projets.
Méthodologies agiles (Scrum), modélisation (UML, ER), gestion de versions (Git, SVN), bug tracking, testing (test- and behavior-driven development), virtualisation (Vagrant, Docker). Connaissance approfondie des systèmes Linux et Windows.

Divers

Langues.
- Français (langue maternelle), anglais (B2 - pratique courante) et néerlandais (A2 - notions)

Développement.
- Mainteneur et contributeur open-source
- Webmaster d'un site communautaire depuis 1996
- Expert LaTeX

Situation.
- Père de famille
- Titulaire du permis B
- Formation incendie *Equipe de Première Intervention* en 2012
- Président de l'assemblée générale des étudiants de la Faculté des Sciences de l'Université de Mons de 2004 à 2006

Dossier scientifique

Journal avec peer-review

2023 **On the usage, co-usage and migration of CI/CD tools : a qualitative analysis**.
Pooya Rostami Mazrae, Tom Mens, Mehdi Golzadeh, Alexandre Decan
Empirical Software Engineering 28, 52, 10.1007/s10664-022-10285-5, 2023

2022 **Recognizing bot activity in collaborative software development**.
Mehdi Golzadeh, Tom Mens, Alexandre Decan, Eleni Constantinou, Natarajan Chidambaram
IEEE Software Special Issue : Bots in Software Engineering, 10.1109/MS.2022.3178601, 2022

2022 **On the Impact of Security Vulnerabilities in the npm and RubyGems Dependency Networks**.
Ahmed Zerouali, Tom Mens, Alexandre Decan, Coen De Roover
Empirical Software Engineering, 10.1007/s10664-022-10154-1, 2022

2021 **Back to the Past − Analysing Backporting Practices in Package Dependency Networks**.
Alexandre Decan, Tom Mens, Ahmed Zerouali, Coen De Roover
IEEE Transactions on Software Engineering, 10.1109/TSE.2021.3112204, 2021

2021 **Lost in Zero Space − An Empirical Comparison of 0.y.z Releases in Software Package Distributions**.
Alexandre Decan, Tom Mens
Science of Computer Programming, 10.1016/j.scico.2021.102656, 2021

2021 **A ground-truth dataset and classification model for detecting bots in GitHub issue and PR comments**.
Mehdi Golzadeh, Alexandre Decan, Damien Legay, Tom Mens
Journal of Systems and Software, 10.1016/j.jss.2021.110911, 2021

2021 **A multi-dimensional analysis of technical lag in Debian-based Docker images**.
Ahmed Zerouali, Tom Mens, Alexandre Decan, Jesus Gonzalez-Barahona and Gregorio Robles
Empirical Software Engineering, 26,10.1007/s10664-020-09908-6, 2021

2020 **Sismic - A Python library for statechart execution and testing**.
Alexandre Decan, Tom Mens
SoftwareX, 10.1016/j.softx.2020.100590, 2020

2020 **GAP : Forecasting Commit Activity in git Projects**.
Alexandre Decan, Eleni Constantinou, Tom Mens, Henrique Rocha
Journal of Systems and Software, 10.1016/j.jss.2020.110573, 2020

2019 **What Do Package Dependencies Tell Us about Semantic Versioning ?**.
Alexandre Decan, Tom Mens
IEEE Transactions on Software Engineering, 10.1109/TSE.2019.2918315, 2019

2019 **A Formal Framework for Measuring Technical Lag in Component Repositories − and its application to npm**.
Ahmed Zerouali, Tom Mens, Jesus Gonzalez-Barahona, Alexandre Decan, Eleni Constantinou, Gregorio Robles
Journal of Software : Evolution and Process, 10.1002/smr.2157, 2019

2018 **A Method for Testing and Validating Executable Statechart Models**.
Tom Mens, Alexandre Decan, Nikolaos Spanoudakis
Software and Systems Modeling, 10.1007/s10270-018-0676-3, 2018

2018 **An Empirical Comparison of Dependency Network Evolution in Seven Software Packaging Ecosystems**.
Alexandre Decan, Tom Mens, Philippe Grosjean
Empirical Software Engineering, 23, 10.1007/s10664-017-9589-y, 2018

2012 **Certain Conjunctive Query Answering in SQL**.
Alexandre Decan, Fabian Pijcke, Jef Wijsen
Lecture Notes in Computer Science, 7520, p154-167, 2012

2012 **An Aperiodicity Problem for Multiwords**.
Véronique Bruyère, Olivier Carton, Alexandre Decan, Olivier Gauwin, Jef Wijsen
RAIRO : Theoretical Informatics and Applications, 46, 1, p33-50, 2012

Article dans les actes avec comité de lecture

2022 **Patched Clones and Missed Patches among the Divergent Variants of a Software Family**.
Poedjadevie Ramkisoen, John Businge, Brent van Bladel, Alexandre Decan, Serge Demeyer, Coen De Roover, Foutse Khomh
ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Singapore, 2022

2022 **On the Use of GitHub Actions in Software Development Repositories**.
Alexandre Decan, Tom Mens, Pooya Rostami Mazrae, Mehdi Golzadeh
38th IEEE International Conference on Software Maintenance and Evolution (ICSME), Limassol, Cyprus, 2022

2022 **On the accuracy of bot detection techniques**.
Mehdi Golzadeh, Alexandre Decan, Natarajan Chidambaram
4th Workshop on Bots in Software Engineering (BotSE), IEEE/ACM ICSEW 2022

2022 **Leveraging Predictions From Multiple Repositories to Improve Bot Detection**.
Natarajan Chidambaram, Alexandre Decan, Mehdi Golzadeh
4th Workshop on Bots in Software Engineering (BotSE), IEEE/ACM ICSEW 2022

2022 **On the rise and fall of CI services in GitHub**.
Mehdi Golzadeh, Alexandre Decan, Tom Mens
29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), Honolulu, Hawai, 2022

2022 **Variant Forks – Motivations and Impediments**.
John Businge, Ahmed Zerouali, Alexandre Decan, Tom Mens, Serge Demeyer, Coen De Roover
29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), Honolulu, Hawai, 2022

2021 **Identifying bot activity in GitHub pull request and issue comments**.
Mehdi Golzadeh, Alexandre Decan, Eleni Constantinou, Tom Mens
3rd Workshop on Bots in Software Engineering (BotSE), IEEE/ACM ICSEW 2021

2021 **A Quantitative Assessment of Package Freshness in Linux Distributions**.
Damien Legay, Alexandre Decan, Tom Mens
4th International Workshop on Software Health (SoHeal), IEEE/ACM ICSEW 2021

2020 **How Magic is Zero ? An Empirical Analysis of Initial Development Releases in Three Software Package Distributions**.
Alexandre Decan, Tom Mens
3rd International Workshop on Software Health (SoHeal), IEEE/ACM ICSEW 2020, Seoul, Republic of Korea, 2020

2020 **On Package Freshness in Linux Distributions**.
Damien Legay, Alexandre Decan, Tom Mens
36th IEEE International Conference on Software Maintenance and Evolution (ICSME), Adelaide, Australia, 2020

2020 **Bot or not ? Detecting bots in GitHub pull request activity based on comment similarity**.
Mehdi Golzadeh, Damien Legay, Alexandre Decan, Tom Mens
2nd Workshop on Bots in Software Engineering (BotSE), IEEE/ACM ICSEW 2020, Seoul, Republic of Korea, 2020

2019 **Towards an Understanding of the Impact of Badges in GitHub Repositories**.
Damien Legay, Alexandre Decan, Tom Mens
18th Belgium-Netherlands Software Evolution Workshop (BENEVOL), Brussels, Belgium, 2019

2019   **On the Effect of Discussions on Pull Request Decisions**.
Mehdi Golzadeh, Alexandre Decan, Tom Mens
18th Belgium-Netherlands Software Evolution Workshop (BENEVOL), Brussels, Belgium, 2019

2018   **On the Evolution of Technical Lag in the npm Package Dependency Network**.
Alexandre Decan, Tom Mens, Eleni Constantinou
34th IEEE International Conference on Software Maintenance and Evolution (ICSME), Madrid, Spain, 2018

2018   **On the Impact of Security Vulnerabilities in the npm Package Dependency Network**.
Alexandre Decan, Tom Mens, Eleni Constantinou
15th International Conference on Mining Software Repositories (MSR), Gothenburg, Sweden, 2018

2018   **Breaking the Borders : An Investigation of Cross-Ecosystem Software Packages**.
Eleni Constantinou, Alexandre Decan, Tom Mens
17th Belgium-Netherlands Software Evolution Workshop (BENEVOL), Delft, the Netherlands, 2018

2018   **On the Impact of Pull Request Decisions on Future Contributions**.
Damien Legay, Alexandre Decan, Tom Mens
17th Belgium-Netherlands Software Evolution Workshop (BENEVOL), Delft, the Netherlands, 2018

2017   **An Empirical Comparison of Dependency Issues in OSS Packaging Ecosystems**.
Alexandre Decan, Tom Mens, Maëlick Claes
24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER), Klagenfurt, Austria, 2017

2017   **On the Interaction of Relational Database Access Technologies in Open Source Java Projects**.
Alexandre Decan, Mathieu Goeminne, Tom Mens
Seminar Series on Advanced Techniques & Tools for Software Evolution (SATToSE), 1820, 26-35, Mons, Belgique, 2017

2016   **On the Topology of Package Dependency Networks : a comparison of three programming language ecosystems**.
Alexandre Decan, Tom Mens, Maëlick Claes
ECSAW'16 : Proceedings of the 10th European Conference on Software Architecture Workshops, Copenhagen, Denmark, 2016

2016   **When GitHub meets CRAN : An Analysis of Inter-Repository Package Dependency Problems**.
Alexandre Decan, Tom Mens, Maëlick Claes, Philippe Grosjean
23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER), Osaka, Japan, 2016

2015   **On the Development and Distribution of R Packages : An Empirical Analysis of the R Ecosystem**.
Alexandre Decan, Tom Mens, Maëlick Claes, Philippe Grosjean
International Workshop on Software Ecosystems (IWSECO), 2015

2014   **Co-evolving Code-related and Database-related Changes in Data-intensive Software System**.
Mathieu Goeminne, Alexandre Decan, Tom Mens
IEEE CSMR-WCRE 2014 Software Evolution Week, 353-357, Antwerpen, Belgique, 2014

2010   **A Variant of Pattern Matching for Multiwords**.
Véronique Bruyère, Olivier Carton, Alexandre Decan, Olivier Gauwin, Jef Wijsen
Journées Montoises en Informatique Théorique, Amiens, France, 2010

2009   **On First-Order Query Rewriting for Incomplete Database Histories**.
Véronique Bruyère, Alexandre Decan, Jef Wijsen
16th International Symposium on Temporal Representation and Reasoning, TIME 2009, 54-61, Bressanone, Italie, 2009

2008   **On First-Order Query Rewriting for Incomplete Database Histories**.
Alexandre Decan, Jef Wijsen
International Workshop on Logic in Databases (LID), 2008

Chapitre de livre

2017 **Inter-component Dependency Issues in Software Ecosystems**.
Maëlick Claes, Alexandre Decan, Tom Mens
Software Technology : 10 Years of Innovation in IEEE Computer, John Wiley & Sons/IEEE Press,
New York, NY, 2017

2017 **Analysing the Evolution of Database Usage in Data-Intensive Software Systems**.
Loup Meurice, Mathieu Goeminne, Tom Mens, Csaba Nagy, Alexandre Decan, Anthony Cleve
Software Technology : 10 Years of Innovation in IEEE Computer, John Wiley & Sons/IEEE Press,
New York, NY, 2017

Thèse de doctorat

2013 **Certain Query Answering in First-Order Languages**.
Thèse de doctorat soutenue le 2 juillet 2013

Organisation de conférences

2022 **BENEVOL**, *Mons*, 12-13 septembre 2022.
21st Belgium-Netherlands Software Evolution Workshop

2017 **TIME 2017**, *Mons*, 16-18 octobre 2017.
24th International Symposium on Temporal Representation and Reasoning

2009 **EuroDocInfo 2009**, *Mons*, 22-23 janvier 2009.

2009 **Bases de Données Avancées (BDA) 2009**, *Namur*, 20-23 octobre 2009.
25èmes journées de Bases de Données Avancées

Distinction

2022 **ICSME 2022 Distinguished Paper**.
38th IEEE International Conferences on Software Maintenance & Evolution
Distinguished Paper Award for "*On the Use of GitHub Actions in Software Development Repositories*"

Financement

2023 **Mandat d'Impulsion Scientifique**, *F.R.S.-FNRS*, 2023 à 2025.
On the impact of workflow automation solutions on continuous collaborative open source software
engineering (F.4515.23, 428.991€)

2022 **Chercheur Qualifié**, *F.R.S.-FNRS*, 2022.
Analysing and improving workflow automation in continuous collaborative open source software
engineering (1.C.024.23F, 20.000€)

Promoteur de thèse

2022 **Hassan Onsori Delicheh**, *Université de Mons*, 2022 (en cours).
Empirical analysis, recommendations and improvements for software development workflow automation
ecosystems

Jury de thèse

2021 **Dealing with Inconsistencies in Knowledge Bases**.
Horacio Tellez Perez, Mons, 23 septembre 2021

2019 **A Measurement Framework for Analyzing Technical Lag in Open-Source Software
Ecosystems**.
Ahmed Zerouali, Mons, 4 septembre 2019

2017 **Theoretical and Practical Methods for Consistent Query Answering in the
Relational Data Model**.
Fabian Pijcke, Mons, 8 février 2018

Lecture & Comité de lecture

Conférences & workshops — International Conference on Open Source Systems – International Conference on Mining Software Repositories – International Workshop on Software Health in Projects, Ecosystems and Communities – Seminar Series on Advanced Techniques & Tools for Software Evolution – International Workshop on Software Engineering for Systems-of-Systems – European Conference on Software Architecture Workshops – Belgian-Netherlands software evolution symposium – International Symposium on Open Collaboration – . . .

Journals — Journal of Systems and Software – Transactions on Software Engineering – IEEE Software – Empirical Software Engineering – International Journal of Business Intelligence and Data Mining – Natural Sciences and Engineering Research Council of Canada – The VLDB Journal – Information Processing Letters – . . .