



EPFL Center for Digital Education presents:

The Learning Analytics Week

October 6-9 2014

Goals. “Big data” has reached the shores of education and training. The development of MOOCs has raised a huge interest for learning analytics. Teachers, trainers and HR managers access new ways for monitoring the state of learners and the effectiveness of the training activities. Learning scientists have new tools to test learning theories with large sample sizes. The potential for learning analytics is huge, but it has yet to be realized. This “learning analytics week” does not address the long-term evolution of learning analytics but explores what can be done today with the data and the tools we have.

Format. To reach this goal, this week is organized as a “hands-on” workshop. The theoretical lectures will be followed by practical activities, in the afternoon. They are represented in green on the program hereafter). We will prepare a data set from an existing MOOC and analyze it from multiple viewpoints and with a statistical package (R) and a data visualization package (to be announced). The participants who are not familiar R are invited to follow an online course prior the week. The references will be sent upon registration. The first afternoon will be devoted to participants who have no experience with R.

Audience. This course is devoted to persons who have to do learning analytics. This includes PhD students and scholars from related fields, such as learning sciences and computer sciences. It also includes the managers in charge of training programs for their institution or their company (deans, CLOs, HR managers, ...).

Logistics. The workshop will be on EPFL campus, Lausanne, Switzerland, from October 6th at 13:00 to October 9th at 17:00. Lausanne can be reached by train from many cities as well as from Geneva airport (1 hour journey). Participants are expected to bring their own laptop for analyzing data during hands-on sessions. The working language will be English but some social interactions may occur in French.

Registration fees. The cost for the week is 650 CHF. PhD students can join for free. Participation will be limited to 40 persons. The fees include drinks and meals. Accommodation is not included in the package (except for the ProDoc and Dual_T members).

Registration at <http://inform.epfl.ch/?form=LAW>

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The EPFL Rolex Learning Center.

Program

	Monday, Oct. 6	Tuesday, Oct. 7	Wednesday, Oct. 8	Thursday, Oct. 9
08:15 - 10:00		The evolution of MOOCs (Pierre Dillenbourg)	Education Data Mining & Automated Analysis of Semantics (D. Ifenthaler)	Orchestration graphs (Pierre Dillenbourg)
10:30 - 12:00		Learning analytics (George Siemens)	Eye tracking methods (Patrick Jermann)	Machine learning (Lukasz Kidzinski)
12:00-13:00		Lunch in Building BC, 4 th floor		
13:15-14:00	Overview (Pierre Dillenbourg)	Public Event: MOOCs as a lens to the future of higher education, George Siemens (Room BC420)	Statistical inference (Lukasz Kidzinski)	Non-linear dependence modeling (Valérie Chavez)
14:15-15:00	Introduction to R (Lukasz Kidzinski)	Performing analytics on MOOCs databases in R (Lukasz Kidzinski)	Performing analytics on MOOCs databases in R (Lukasz Kidzinski)	Applications of non-linear modeling in R (Valérie Chavez)
15:30-17:00				
17:30	Reception at the EPFL Center for Digital Education	19:00 Dinner at Starling Hotel		Closing session

Speakers

Prof. George Siemens, Learning Innovation and Networked Knowledge Research Lab, The University of Texas at Arlington, USA

George Siemens is an academic and researcher on learning, technology, networks, analytics, and openness in education. Dr. Siemens is the Executive Director of the Learning Innovation and Networked Knowledge Research Lab at University of Texas, Arlington. He has delivered keynote addresses in more than 35 countries on the influence of technology and media on education, organizations, and society. His work has been profiled in provincial, national, and international newspapers (including NY Times), radio, and television. His research has received numerous awards, including honorary doctorates from Universidad de San Martín de Porres and Fraser Valley University for his pioneering work in learning, technology, and networks. Siemens is a founding member and President of the Society for Learning Analytics Research (<http://www.solaresearch.org/>). He has advised government agencies Australia, European Union, Canada and United States, as well as numerous international universities, on utilizing learning analytics for assessing and evaluating productivity gains in the education sector and improving learner results. In 2008, he pioneered massive open online courses (sometimes referred to as MOOCs) that have included more than 35,000 participants. He blogs at <http://www.elearnspace.org/blog/> and on Twitter: gsiemens

Prof. Dr. Dirk Ifenthaler, Applied Teaching and Learning Research, University of Potsdam, Germany

Professor Ifenthaler's (www.ifenthaler.info; dirk@ifenthaler.info) research interests are in cognitive psychology, educational technology, learning analytics, and teacher education. He developed automated and computer-based methodologies for the assessment, analysis, and feedback of graphical and natural language representations. His research outcomes include numerous co-authored books, book series, book chapters, journal articles, and international conference papers. Dirk is the Editor-in-Chief of *Technology, Knowledge and Learning* (www.springer.com/10758), the 2013-2014 President for the AECT (Association for Educational Communications and Technology) Division Design and Development, 2013-2015 Chair for the AERA (American Educational Research Association) Special Interest Group Technology, Instruction, Cognition and Learning and Co-Program Chair for the international conference on Cognition and Exploratory Learning in the Digital Age .

Prof. Valerie Chavez, Faculty of Business and Economics (HEC), Université de Lausanne

Valérie Chavez-Demoulin is Professor of Statistics at HEC Lausanne, specialising in statistical methods for quantitative risk management in general, and the statistical modeling of extreme events in particular. More recent methodological work concerns conditional dependence structures modeling, non-parametric Bayesian models, dynamic Extreme Value Theory models and extremes for non-stationary time series. Following her PhD in Statistics at EPFL, she obtained a grant for a postdoctoral position in collaboration with the SLF in Davos. Afterwards she has been a research fellow at the Department of Mathematics at ETH, Zurich. Aside from her research, she has been the quantitative risk manager for a Hedge Fund for 3 years. She is member of the RiskLab, ETH, Zurich and is an elected member of ISI (The International Statistical Institute).

Dr. Patrick Jermann, Center for Digital Education, EPFL

After studies in Geneva (TECFA) and Pittsburgh (LRDC) I joined EPFL in 2003 to coordinate eLearning projects and conduct research in the field of Computer Supported Collaborative Learning (CSCL). Since 2013, he is the executive director Center for Digital Education (CEDE). His research focuses on interaction analysis, in tangible augmented simulations and dual eye-tracking for collaborative problem-solving. He is Associate Editor for the *IEEE Transactions on Learning Technologies* and Member of the Editorial Board for the *International Journal of Computer Supported Collaborative Learning (IJCSCL)*.

Dr. Lukasz Kidzinski, CHILI Lab, EPFL

Lukasz Kidzinski is finishing his PhD at the Université Libre de Bruxelles and will join EPFL in September 2014. His thesis is focused on time series in a functional setup. Before I obtained two master degrees (in computer science and mathematics) at the University of Warsaw. His main academic interests concern machine learning, data mining, time series analysis, spectral analysis as well as engineering applications.

Prof. Pierre Dillenbourg, Center for Digital Education, EPFL, Lausanne

Pierre Dillenbourg is Professor of Learning Technologies in the School Computer and Communication Sciences, EPFL, Lausanne, and academic director of the Center for Digital Education. A former teacher in elementary school, he graduated in educational science (University of Mons, Belgium). He started his research on learning technologies in 1984. He obtained a PhD in computer science from the University of Lancaster (UK), in the domain of artificial intelligence applications for educational software. He has been professor assistant at TECFA, University of Geneva. He joined EPFL in November 2002. He is the head of the CHILI Lab: "Computer-Human Interaction for Learning & Instruction".