

Florian Leitner, PhD

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Personal Profile and Expertise

- Content analyses based on information retrieval and extraction.
 - Applied machine learning for data and text mining.
 - Specialization on molecular biology and bioinformatics.
 - Distributed web services, computing, and web development expert.
 - Excellent communication, planning, and organization skills.
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Professional Career Summary

PhD Student, National Cancer Research Centre (CNIO), Madrid, Spain

since Aug. 2006 • Prof. Alfonso Valencia Herrera

- Co-organization and evaluation of three international scientific community challenges on information extraction for molecular biology: BioCreative II and III, and acting main organizer of BioCreative II.5 (www.biocreative.org).
- Design and implementation of the first distributed meta-service for natural language processing in biology, the BioCreative Meta-Server (Python and JavaScript; placed third in the 2009 ICWS Services Cup after submissions from IBM and SAP).
- Integration of natural language processing tools and libraries in C, Java and Python.

MSc Student, Institute for Molecular Pathology (IMP), Vienna, Austria

*Jul. 2003 - Jul. 2006 • Prof. Frank Eisenhaber (now director of the A*STAR Bioinformatics Institute, Singapore)*

- Data acquisition and import from biological resources (parser development) and data visualization (on Apache/Struts) for an in-house bioinformatics framework ("Annotator").
- Data indexing and query interface for the Annotator framework with Lucene.

Developer, CSO Lanifex GmbH., Vienna, Austria

Mar. 2003 - Jun. 2003 • Paul Gillingwater, MBA (now CEO of Anagram Media e.U., U.S.A.)

- Development of a specialized VPN network for the Austrian National Bank (particular contributions: Linux kernel modifications and adapting the Mozilla framework as a GUI for the thin client devices).
- Contributions to the Vienna United Nations HQ intranet framework (MySQL, PHP).

Visiting Student, European Media Labs (EML), Heidelberg, Germany

Jul. 2002 - Feb. 2003 • Rebecca Wade, PhD

- Development of a visualization plugin for annotations of protein structures (Java).
- Installation and configuration of Python libraries for structural biocomputing.

Undergraduate Student, Novartis Research Institute, Vienna, Austria

Jul. 2001 - Jun. 2002 • Markus Jaritz, PhD (now head of the GEN-AU Bioinformatics Division, Austria)

- Development of a Perl-based framework for Bioinformatics (Non-Disclosure Agreement).

Product/Marketing Manager, ProDesign, Natters bei Innsbruck, Austria

Sep. 1997 - Jul. 2000 • Herbert Hofbauer, CEO

- International production (China, Israel, South Korea) and sales management for a Tyrolean paraglider producer.
 - Organization of marketing (sports) events and advertisements.
 - Contributions to the in-house production/warehouse management tool (VisualBasic).
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Selected IT Experience

- ▶ Performing content analyses with Tika, UIMA, GATE, NLTK, and LingPipe.
 - ▶ Machine learning with Mahout, Orange, WEKA, and a several specialized libraries.
 - ▶ Empowering data queries with Lucene/Solr, Sphinx, or Xapian.
 - ▶ Distributed computing experience with Hadoop/HDFS.
 - ▶ Designing asynchronous messaging solutions with ZeroMQ and RabbitMQ.
 - ▶ Data management skills with PostgreSQL, CouchDB, Riak, Cassandra, or HBase.
 - ▶ Web development with Apache/Struts, Django, Rails, and Node.js.
 - ▶ Expertise in design and implementation patterns for efficient Java.
 - ▶ Deep knowledge of Python, and excellent C integration skills.
 - ▶ Well-grounded programming experience in server- and client-side JavaScript.
 - ▶ Conceptual understanding of Lisp, Erlang, Ruby, C++, Scala, and other languages.
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Academic Titles

March 2012 - PhD, Molecular Biology, with distinction
Autonomous University of Madrid (UAM), Spain

July 2006 - MSc, Molecular Biology, with distinction
Vienna University, Austria

First-author Publications

1. Leitner, F., Chatr-aryamontri, A., Mardis, S. A., Ceol, A., Krallinger, M., Licata, L., Hirschman, L., Cesareni, G. & Valencia, A.
The FEBS Letters/BioCreative II.5 experiment: making biological information accessible
Nature Biotechnology, 28(9), pp. 897–9, 2010
 2. Leitner, F., Krallinger, M., Cesareni, G. & Valencia, A.
The FEBS Letters SDA corpus: a collection of protein interaction articles with high quality annotations for the BioCreative II.5 online challenge and the text mining community
FEBS Letters, 584(19), pp. 4129–30, 2010
 3. Leitner, F., Mardis, S. A., Krallinger, M., Cesareni, G., Hirschman, L. A. & Valencia, A.
An overview of BioCreative II.5
IEEE/ACM Trans Comput Biol Bioinform, 7(3), pp. 385–99, 2010
 4. Leitner, F., Krallinger, M., Rodriguez-Penagos, C., Hakenberg, J., Plake, C., Kuo, C.-J., Hsu, C.-N., Tsai, R. T.-H., Hung, H.-C., Lau, W. W., Johnson, C. A., Saetre, R., Yoshida, K., Chen, Y. H., Kim, S., Shin, S.-Y., Zhang, B.-T., Baumgartner, Jr, W. A., Hunter, L., Haddow, B., Matthews, M., Wang, X., Ruch, P., Ehrler, F., Ozgür, A., Erkan, G., Radev, D. R., Krauthammer, M., Luong, T., Hoffmann, R., Sander, C. & Valencia, A.
Introducing meta-services for biomedical information extraction
Genome Biology, 9 Suppl 2, S6, 2008
 5. Leitner, F. & Valencia, A.
A text-mining perspective on the requirements for electronically annotated abstracts
FEBS Letters, 582(8), pp. 1178–81, 2008
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Other Accomplishments

- 2012 Stanford Online Natural Language Processing Course
completed with 88.3/100 total score
 - 2009 IEEE Services-I World Conference “Services Cup”
3rd place behind competitors from SAP and IBM
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Co-author Publications

1. Salgado D., Krallinger M., Depaule M., Drula E., Tendulkar A., Leitner F., Valencia A., Marcelle C.
MyMiner: a web application for computer-assisted biocuration and text annotation.
Bioinformatics, 2012, [advance access]
 2. Krallinger, M., Leitner, F., Vazquez, M., Salgado, D., Marcelle, C., Tyers, M., Valencia, A., Chatr-aryamontri, A.
How to link ontologies and protein–protein interactions to literature: text-mining approaches and the BioCreative experience
Database, 2012, bas017, 2012
 3. Krallinger, M., Vazquez, M., Leitner, F., Salgado, D., Chatr-Aryamontri, A., Winter, A., Perfetto, L., Briganti, L., Licata, L., Iannuccelli, M., Castagnoli, L., Cesareni, G., Tyers, M., Schneider, G., Rinaldi, F., Leaman, R., Gonzalez, G., Matos, S., Kim, S., Wilbur, W., Rocha, L., Shatkay, H., Tendulkar, A. V., Agarwal, S., Liu, F., Wang, X., Rak, R., Noto, K., Elkan, C., Lu, Z., Dogan, R., Fontaine, J.-F., Andrade-Navarro, M. A. & Valencia, A.
The protein-protein interaction tasks of BioCreative III: classification/ranking of articles and linking bio-ontology concepts to full text
BMC Bioinformatics, 12(Suppl 8), S3, 2011
 4. Vazquez, M., Krallinger, M., Leitner, F. & Valencia, A.
Text mining for drugs and chemical compounds: methods, tools and applications
Molecular Informatics, 30(6–7), pp. 506-519, 2011
 5. Krallinger, M., Tendulkar, A., Leitner, F., Chatr-aryamontri, A. & Valencia, A.
The PPI affix dictionary (PPIAD) and biomethod lexicon: importance of affixes and tags for recognition of entity mentions and experimental protein interactions
BMC Bioinformatics, 11(Suppl 5), O1, 2010
 6. Krallinger, M., Leitner, F., Rodriguez-Penagos, C. & Valencia, A.
Overview of the protein-protein interaction annotation extraction task of BioCreative II
Genome Biology, 9(Suppl 2), S4, 2008
 7. Krallinger, M., Morgan, A., Smith, L., Leitner, F., Tanabe, L., Wilbur, J., Hirschman, L. & Valencia, A.
Evaluation of text-mining systems for biology: overview of the second BioCreative community challenge
Genome Biology, 9(Suppl 2), S1, 2008
 8. Gabdoulline, R.R., Hoffmann, R., Leitner, F. & Wade, R. C.
ProSAT: functional annotation of protein 3D structures
Bioinformatics, 19 (13), p. 1723, 2003
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Conference Proceedings (see Presentations for First Author Proceedings)

1. Krallinger, M., Vazquez, M., Leitner, F. & Valencia A.
Results of the BioCreative III (Interaction) Article Classification Task.
Proceedings of the BioCreative III Challenge Evaluation Workshop, pp. 17-23, 2010
2. Krallinger, M., Vazquez, M., Leitner, F. & Valencia A.
Results of the BioCreative III Interaction Method Task.
Proceedings of the BioCreative III Challenge Evaluation Workshop, pp. 9-16, 2010
3. Starlinger, J., Leitner, F., Valencia, A. & Leser, U.
SOA-based integration of text mining services
2009 World Conference on Services (IEEE SERVICES), pp. 99-106, 2009
4. Krallinger, M., Leitner, F. & Valencia, A.
Assessment of the second BioCreative PPI task: automatic extraction of protein-protein interactions
Proceedings of the second BioCreative Challenge Evaluation Workshop, pp. 41-54, 2007
5. Krallinger, M., Rodriguez-Penagos, C., Leitner, F. & Valencia, A.
Exploiting text mining of biological annotations to extract protein interactions for the Semantic web.
Seventh Intl. Workshop on Network Tools and Applications in Biology (NETTAB), pp. 47-53, 2007

Book Chapters

1. Krallinger, R., Leitner, F. & Valencia, A.
Analysis of Biological Processes and Diseases Using Text Mining Approaches
Editor: Matthiesen, R.
Bioinformatics Methods in Clinical Research, Methods in Molecular Biology 593, pp. 341-382, 2010
 2. Leitner, F., Hoffmann, R. & Valencia, A.
Biological Knowledge Extraction
Editor: Krawetz, S.
Bioinformatics for Systems Biology, Part V, pp. 413-433, 2009
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Presentations

1. **Integration across genomics and medicine**
Panel discussion, BioLINK @ ISMB/ECCB, 2011, Vienna, Austria
 2. **Annotating scientific manuscripts and the role of text-mining**
FEBS J Board Meeting, 2010, Cambridge, UK
 3. **Making biological information accessible**
CNIO Progress Reports, June 2010, Madrid, Spain
 4. **On interoperability in text mining**
BioCreative III Workshop, 2010, Bethesda, USA
 5. **The BioCreative II.5 evaluation results**
BioCreative II.5 Workshop, 2009, Madrid, Spain
 6. **The BCMS in the challenge and as a collaborative platform**
BioCreative II.5 Workshop, 2009, Madrid, Spain
 7. **Comparative community assessments for applied biomedical text mining - BioCreative II challenge and meta-services**
ISMB/ECCB, 2009, Stockholm, Sweden
 8. **The BioCreative II.5 online challenge**
BioLINK @ ISMB/ECCB, 2009, Stockholm, Sweden
 9. **The BioCreative Meta-Server platform**
SMBM, 2008, Turku, Finland
 10. **The interaction pair & interaction method sub-tasks evaluation**
BioCreative II Workshop, 2007, Madrid, Spain
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