

Susana Vinga
Principal Investigator

Centre of Intelligent Systems (CSI)
IDMEC - Instituto de Engenharia Mecânica
Av. Rovisco Pais 1, 1049-001 Lisboa, Portugal
Tel. (+351) 218 419 504; Fax: (+351) 218 498 097
Email: susanavinga@tecnico.ulisboa.pt
Webpage: <http://web.ist.utl.pt/susanavinga/>

Present and Past Positions

2013- Principal Investigator at CSI, IDMEC
2013- Invited Assistant Professor, Instituto Superior Técnico, Universidade Lisboa (IST-UL)
2006-13 Senior Researcher, KDBIO group, INESC-ID
2005-13 Invited Assistant Professor, Dept. Biostatistics and Informatics, FCM-UNL

Education

2005 PhD (Doutoramento) Biology/Bioinformatics, Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa (ITQB/UNL)
2002 Post-graduation (Pós-graduação) Applied Mathematics: Probability and Statistics (IST)
1999 BSc (5-year Licenciatura), Mechanical Engineering: Automation and Robotics (IST); Biomedical Engineering Courses (Politecnico di Milano)

Projects

Principal investigator

CancerSys – Multiscale modeling for personalized therapy of bone metastasis. FCT (EXPL/EMS-SIS/1954/2013). From 01-04-2014 to 31-03-2015. Funding: 49,997€
HIVCONTROL - Control based on dynamic modeling of HIV-1 infection for therapy design. FCT (PTDC/EEACRO/100128/2008). From Jan-2010 to Dec-2012. Funding: 144,474€.
DynaMo – Dynamic modeling, control and optimization of metabolic networks. FCT (PTDC/EEA-ACR/69530/2006). From Sep-2007 to Aug-2010. Funding: 190,000€.

Workpackage/Task Leader/Member of Team

InteleGen – Pharmacokinetic/Pharmacogenetic modulation of HIV infection therapy by bayesian and artificial intelligence methods. FCT (PTDC/DTP-FTO/1747/2012). From 1-Jun-2013 a 31-May-2015. Funding: 140,000€. Task Leader.
BacHBerry - BACterial Hosts for production of Bioactive phenolics from bERRY fruits. Financed by: FP7. KBBE.2013.3.1-01: Plant High Value Products – from discovery to final Product. Prime contractor: Danmarks Tekniske Universitet DTU (Jochen Förster, PI). FP7- 613793. Beg. 1 Oct 2013. Funding: 7,150,123€. Workpackage Leader.
PneumoSyS - A systems biology approach to the role of pneumococcal carbon metabolism in colonization and invasive disease. FCT (PTDC/SAU-MII/100964/2008). From 1-Jan-2010 to 31-Dec-2012. Funding: 199,650€. Task Leader.
PNEUMOPATH - A comprehensive dissection of pneumococcal-host interactions. Prime contractor: University of Leicester (Peter Andrew, PI). Financed by: EU-FP7 (Contract 222983). From Mar-2010 to Feb-2012. Funding: 2,999,843€.

Research Interests

Bioinformatics, Computational Biology, Systems Biomedicine. Probability and Statistics. Biomedical Engineering. Applied Mathematics to Biological Sciences and Medicine.

Supervision and other activities

(Co-)supervisions: 2 post-doc, 4 PhD (two defended), 12 MSc Theses, several internships and grant holders. Associate Editor of BMC Bioinformatics. Reviewer (more than 12 international journal) and 5 participations in scientific program committees.

Grants and awards

- 2012 Winner Principal Investigator position (Development Grant) under the highly competitive Investigador FCT program.
- 2010 Young Researcher Award of the Technical University of Lisbon (UTL) in the area of Informatics for the impact of her publications.
- 1989 Winner of the VII National Mathematical Olympiads, Portuguese Mathematical Society

Selected publications

- Vinga S (2014) Information theory applications for biological sequence analysis. *Brief Bioinform* (2014) 15 (3): 376-389. doi: 10.1093/bib/bbt068
- Caldas J, Vinga S (2014) Global Meta-Analysis of Transcriptomics Studies. *PLoS ONE* 9(2): e89318. doi:10.1371/journal.pone.0089318
- Costa RS, Hartmann A, Gaspar P, Neves AR, Vinga S (2014) An extended dynamic model of *Lactococcus lactis* metabolism for mannitol and 2,3-butanediol production. *Molecular BioSystems*. DOI: 10.1039/C3MB70265K (*Mol. BioSyst.*, 2014, Advance Article).
- Veríssimo A, Paixão L, Neves AR, Vinga S (2013) BGFit: management and automated fitting of biological growth curves. *BMC Bioinformatics* 14(1), art. no. 283. DOI: 10.1186/1471-2105-14-283
- Gaspar P, Carvalho AL, Vinga S, Santos H, Neves AR. (2013) From physiology to systems metabolic engineering for the production of biochemicals by lactic acid bacteria. *Biotechnology Advances* 2013, 31(6):764-788.
<http://dx.doi.org/10.1016/j.biotechadv.2013.03.011>
- Vinga S, Carvalho AM, Francisco AP, Russo LMS, Almeida JS. (2012) Pattern matching through Chaos Game Representation: bridging numerical and discrete data structures for biological sequence analysis. *Algorithm Mol Biol* 2012, 7:10.
- Tenazinha N, and Vinga S (2011) A Survey on Methods for Modeling and Analyzing Integrated Biological Networks, *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)*. Vol. 8, no. 4, pp. 943-955, July/August 2011.
- Vinga S, Neves AR, Santos H, Brandt BW, and Kooijman SALM (2010) Subcellular metabolic organization in the context of Dynamic Energy Budget and Biochemical Systems theories. *Philosophical Transactions of the Royal Society B*. 2010 Nov 12; 365(1557):3429-42.
- Vilela M, Vinga S, Maia MA, Voit EO, Almeida JS (2009) Identification of neutral biochemical network models from time series data, *BMC Systems Biology*, 3(47), May. 2009.
- Oliveira, D. C., Santos, M., Milheirico, C., Carrico, J. A., Vinga, S., Oliveira, A. L., and de Lencastre, H. (2008). *ccrB* typing tool: an online resource for staphylococci *ccrB* sequence typing. *Journal of Antimicrobial Chemotherapy*, 61(4), 959-960.
- Vinga, S., and Almeida, J. S. (2007). Local Renyi entropic profiles of DNA sequences. *BMC Bioinformatics*, 8, 393.
- Gomes, A. R., Vinga, S., Zavolan, M., and de Lencastre, H. (2005). Analysis of the genetic variability of virulence-related loci in epidemic clones of methicillin-resistant *Staphylococcus aureus*. *Antimicrobial Agents and Chemotherapy*, 49(1), 366-379.
- Vinga, S., and Almeida, J. S. (2004). Renyi continuous entropy of DNA sequences. *Journal of Theoretical Biology*, 231(3), 377-388.
- Vinga, S., and Almeida, J. (2003). Alignment-free sequence comparison - a review. *Bioinformatics*, 19(4), 513-523.