

Software Engineering: Interdisciplinarity & Challenges

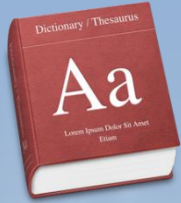
Index



1. The Man behind the talk
2. Definitions
3. Is SE interdisciplinary?
4. SE, the scenario
 1. People(ware)
 2. GSD
 3. Automation
 4. IA4SEN Vs. SEN4IA
5. Conclusions
6. References



2. Definitions



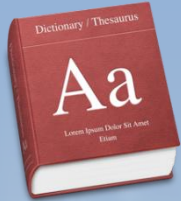
† Software Engineering (SEN):

‡ The application of a systematic, disciplined, quantifiable approach to the development, operation and maintenance of software; that is, the application of engineering to software. [ISO/IEC/IEEE 24765, 2010].

† SEN practices are largely concerned with **managing** relevant processes and with **design** activities [SWEBOK, 2014].



2. Definitions



† Interdisciplinary

- ‡ Involving two or more academic, scientific, or artistic disciplines [Merriam–Webster, 2018]
- ‡ Involving two or more different subjects or areas of knowledge [Cambridge Dictionary, 2018]

† Interprofessional

- ‡ Occurring between or involving two or more professions or professionals [Merriam–Webster, 2018]



5. Conclusions



- † SW is eating the world.
- † SEN is attractive in terms of job conditions / career prospects.
- † Increasing talent needs & talent shortage.
- † Ambassadors!
- † GSD & Immigrants as the solution for the shortage in Europe.
- † Automation is here to stay (and mature).
- † SEN4IA.



6. References



- † Ahuja, M. K. (2002). Women in the information technology profession: A literature review, synthesis and research agenda. *European Journal of Information Systems*, 11(1), 20–34.
- † Bourque, P., & Fairley, R. E. (2014). *Guide to the software engineering body of knowledge (SWEBoK (R)): Version 3.0*. IEEE Computer Society Press.
- † Britannica, 2018
- † Cambridge Dictionary, 2018
- † Cappelli, P. (2001). Why is it so hard to find information technology workers? *Organizational Dynamics*, 30(2), 87–99.
- † Chatzipetrou, P., Šmite, D., & van Solingen, R. (2018, October). When and who leaves matters: emerging results from an empirical study of employee turnover. In *Proceedings of the 12th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement* (p. 53). ACM.
- † Experis (2018). Focus on Engineerig 2017. <https://www.experisjobs.us/Website-File-File/Whitepapers/Experis/engineering-whitepaper.pdf>
- † Herbsleb, J. D., & Mockus, A. (2003). An empirical study of speed and communication in globally distributed software development. *IEEE Transactions on software engineering*, 29(6), 481–494.
- † Hirschheim, R., & Newman, M. (2010). Houston, we've had a problem..... offshoring, IS employment and the IS discipline: perception is not reality. *Journal of Information Technology*, 25(4), 358–372.
- † ISO/IEC/IEEE 24765:2010 Systems and software engineering—Vocabulary.
- † Korunka, C., Hoonakker, P., & Carayon, P. (2008). Quality of Working Life and Turnover Intention in Information Technology Work. *Human Factors and Ergonomics in Manufacturing*, 18 (4), 409–423.
- † Lee, R., Wang, H., & Zhang, X. (2018, July). Software-Defined Software: A Perspective of Machine Learning-Based Software Production. In *2018 IEEE 38th International Conference on Distributed Computing Systems (ICDCS)* (pp. 1270–1275). IEEE.
- † McGowan, A., Hanna, P., & Anderson, N. (2017, October). Computing gender wars—A new hope. In *Frontiers in Education Conference (FIE)* (pp. 1–8). IEEE.
- † Mendez, D., & Passoth, J.H. (2018). Empirical Software Engineering: From Discipline to Interdiscipline. *Empirical Software Engineering*, In press.
- † Milewski, A. E., Tremaine, M., Köbler, F., Egan, R., Zhang, S., & O'Sullivan, P. (2008). Guidelines for effective eridging in global software engineering. *Software Process: Improvement and Practice*, 13(6), 477–492.
- † Menezes, A., & Prikladnicki, R. (2018, May). Diversity in software engineering. In *2018 IEEE/ACM 11th International Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)* (pp. 45–48). IEEE.
- † Merriam-Webster, 2018
- † Moisan, S. (2010). Generating knowledge-based system generators: a software engineering approach. *International Journal of Intelligent Information Technologies (IJIT)*, 6(1), 1–17.
- † Pyster, A., Olwell, D. H., Hutchison, N., Enck, S., Anthony Jr, J. F., & Henry, D. (2012). Guide to the systems engineering body of knowledge (SEBoK) v. 1.0. 1. *Guide to the Systems Engineering Body of Knowledge (SEBoK)*.
- † Shackelford, R., McGettrick, A., Sloan, R., Topi, H., Davies, G., Kamali, R., Lunt, B. (2006). Computing Curricula 2005: The Overview Report. In *Proceedings of the 37th SIGCSE Technical Symposium on Computer Science Education* (pp. 456–457). New York, NY, USA: ACM. doi:10.1145/1121341.1121482
- † Stripe & Harris Poll (2018). Developer Coeficient. <https://stripe.com/reports/developer-coefficient-2018>
- † Von Hagel Jr. W. J., & Miller, L. A. (2011). Precipitating events leading to voluntary employee turnover among information technology professionals. *Journal of Leadership Studies*, 5(2), 14–33.
- † Yin, H., & Pfahl, D. (2017, November). Open innovation in software requirements engineering: A mapping study. In *Software Engineering and Service Science (ICSESS), 2017 8th IEEE International Conference on* (pp. 5–10). IEEE.



Software Engineering: Interdisciplinarity & Challenges