Pakdeetrakulwong, U.\textsuperscript{a}, Wongthongtham, P.\textsuperscript{a}, Siricharoen, W.V.\textsuperscript{b}

**Recommendation systems for software engineering: A survey from software development life cycle phase perspective**

DOI: 10.1109/ICITST.2014.7038793

\textsuperscript{a} School of Information Systems, Curtin University, Perth, Australia
\textsuperscript{b} School of Science and Technology, University of the Thai Chamber of Commerce, Bangkok, Thailand

**Abstract**
Recommendation systems have the potential to support their users for filtering information and making a decision. They have become a promising research area over the past two decades in several domains. Software development field also gain benefit from the advancement of this technology. Recommendation systems specific to software engineering can facilitate their users in a wide range of activities, i.e., requirement engineering, designing, programming, and testing. In this paper, we conduct a survey of recommendation systems for software engineering focusing in particular on what they can assist users in each software development life cycle phase. From the result of survey, we identify some open research issues that are used to outline the motivation for our future work. © 2014 Infonomics Society.

**Author Keywords**
Recommendation systems; Software development; Software engineering

**References**
- Mahmoud, T., Ricci, F.
  *Improving recommender systems with adaptive conversational strategies*
  Torino, Italy

- Park, D.H., Kim, H.K., Choi, I.Y., Kim, J.K.
  *A literature review and classification of recommender systems research*

- Access Date: 11 October, 2014

- Access Date: 10/10/2014

- Access Date: 11 October, 2014

  (Access Date: 10 October, 2014)

- Koren, Y., Bell, R., Volinsky, C.
  *Matrix factorization techniques for recommender systems*

- Robillard, M., Walker, R., Zimmermann, T.
  *Recommendation systems for software engineering*
  IEEE

- Ponzanelli, L.
  *Holistic recommender systems for software engineering*
  (2014) *Companion Proceedings of the 36th International Conference on Software*
• Happel, H.J., Maalej, W. 

• Mohebzada, J.G., Ruhe, G., Eberlein, A. 

• Mukhtar, M., Raza, A., Malik, A. 
  *Collaborative software engineering model (csem) Cases and Projects in Business Informatics*, p. 29.

• Castro-Herrera, C., Duan, C., Cleland-Huang, J., Mobasher, B. 
  *A recommender system for requirements elicitation in large-scale software projects* 
  Honolulu, Hawaii

• Mobasher, B., Cleland-Huang, J. 
  *Recommender systems in requirements engineering* 

• Maalej, W., Thurimella, A.K. 

• Castro-Herrera, C., Cleland-Huang, J., Mobasher, B. 
  *Enhancing Stakeholder Profiles to Improve Recommendations in Online Requirements Elicitation*, pp. 37-46.

• Castro-Herrera, C., Cleland-Huang, J. 

• Lim, S.L., Quercia, D., Finkelstein, A. 
  *StakeNet: Using social networks to analyse the stakeholders of large-scale software projects* 
  Cape Town, South Africa

• Soo Ling, L., Finkelstein, A. 
  *StakeRare: Using social networks and collaborative filtering for large-scale requirements elicitation* 

• Lim, S.L., Damian, D., Ishikawa, F., Finkelstein, A. 
  *Using web 2.0 for stakeholder analysis: Stakesource and its application in ten industrial projects* 
  W. Maalej and A. K. Thurimella, eds. Springer Berlin Heidelberg

• Felfernig, A., Zehentner, C., Ninaus, G., Grabner, H., Maalej, W., Pagano, D., Weninger, L., Reinfrank, F. 
  *Group decision support for requirements negotiation* 
L. Ardissono and T. Kuflik, eds., Springer Berlin Heidelberg

- Dumitru, H., Gibiec, M., Hariri, N., Cleland-Huang, J., Mobasher, B., Castro-Herrera, C., Mirakhorli, M.
  **On-demand feature recommendations derived from mining public product descriptions**
  Waikiki, Honolulu, HI, USA

- Guéhéneuc, Y.-G., Mustapha, R.
  **A simple recommender system for design patterns**

- Palma, F., Farzin, H., Guéhéneuc, Y., Moha, N.

- Suresh, S., Naidu, M., Kiran, S.A., Tathawade, P.
  **Design pattern recommendation system: A methodology, data model and algorithms**
  (2011) *ICCTAI’2011*,

- Liu, L., Miao, P., Pavlic, L., Hericko, M., Zhang, R.
  **An ontology-based advisement approach for soa design patterns**
  (2014) *The 8th International Conference on Knowledge Management in Organizations*, pp. 73-84.

- Sawadsky, N., Murphy, G.C.
  **Fishtail: From task context to source code examples**
  Waikiki, Honolulu, HI, USA

- Cordeiro, J., Antunes, B., Gomes, P.

- McMillan, C., Poshyvanyk, D., Grechanik, M.
  **Recommendating source code examples via api call usages and documentation**
  Cape Town, South Africa

- Ashok, B., Joy, J., Liang, H., Rajamani, S.K., Srinivasa, G., Vangala, V.
  **DebugAdvisor: A recommender system for debugging**
  Amsterdam, The Netherlands

- Ankolekar, A., Sycara, K., Herbsleb, J., Kraut, R., Welty, C.
  **Supporting Online Problem-solving Communities with the Semantic Web**, pp. 575-584.

- Maalej, W., Sahm, A.
  **Assisting engineers in switching artifacts by using task semantic and interaction history**
  Cape Town, South Africa

- Ching-Yung, L., Ehrlich, K., Griffiths-Fisher, V., Desforges, C.
  **SmallBlue: People mining for expertise search**
IEEE

- Begel, A., Yit Phang, K., Zimmermann, T.  
  *Codebook: Discovering and Exploiting Relationships in Software Repositories*, pp. 125-134.

- Moraes, A., Silva, E., Trindade, C.D., Barbosa, Y., Meira, S.  
  **Recommending experts using communication history**  
  Cape Town, South Africa

- Steinmacher, I., Wiese, I.S., Gerosa, M.A.  

- Xiang, P.F., Ying, A.T.T., Cheng, P., Dang, Y.B., Ehrlich, K., Helander, M.E., Matchen, P.M., Yang, S.X.  
  **Ensemble: A recommendation tool for promoting communication in software teams**  
  Atlanta, Georgia

  *Recommender systems for manual testing: Deciding how to assign tests in a test team*  
  Lund, Sweden

- Kpodjedo, S., Ricca, F., Galinier, P., Antoniol, G.  
  **Not all classes are created equal: Toward a recommendation system for focusing testing**  
  Atlanta, Georgia

  **Ontologies supporting the distributed software development: A systematic mapping study**  
  Porto de Galinhas, Brazil

**Document Type:** Conference Paper  
**Source:** Scopus