SIBA MISHRA

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Career Objective

To pursue a career in the field of technology by keeping up pace with the latest trends and working dynamically for the growth of organization. In short, seeking a position, where I can get hands-on experience on the state-of-the-art techniques for industrial-strength designs and exposure towards incorporating new research directions into the industrial context.

Current Position

May, 2018 to Present — **Post Doctoral Fellow (PDF)** at the Department of Electrical Engineering and Computer Science (EECS), Indian Institute of Science Education and Research (IISER), Bhopal.

Research Area of Interests

Current Research — My current research focuses on the applied inter-disciplinary areas of *Software Requirements Engineering*, *Natural Language Processing* and *Deep Learning*.

Past Research — The sub-domain areas of software engineering including the *Software Service Effort Estimation*, *Testing* of Service-Oriented Architecture (SOA) Systems and *Program Analysis* of Aspect-Oriented Programs (AOP) have been explored as a part of my past research.

Education

2013–2018 — **Ph.D. in Computer Science and Engineering**, *Indian Institute of Technology (Indian School of Mines), IIT (ISM), Dhanbad*, Jharkhand, India.

2010–2012 — **Master of Technology (M. Tech) in Computer Science and Engineering**, *Kalinga Institute of Industrial Technology (KIIT)*, Bhubaneswar, Odisha, India.

2005–2009 — **Bachelor of Technology (B. Tech) in Computer Science and Engineering**, *Biju Patnaik University of Technology (BPUT)*, Rourkela, Odisha, India.

2005 — **Higher Secondary**, *Kendriya Vidyalaya, Puri*, Odisha, India.

2003 — **Secondary**, *Kendriya Vidyalaya, Puri*, Odisha, India.

Doctoral Thesis

Title — *Efficient Cost Estimation and Testing Approaches for SOA Systems*

Supervisor — Prof. Chiranjeev Kumar, Department of Computer Science and Engineering, IIT (ISM), Dhanbad, Jharkhand, India

Short Thesis Description	The main objective is to study, design and develop efficient cost estimation and testing approaches for SOA systems. In general, the cost/effort estimation and testing of SOA systems is different from that of traditional software. One of the prominent reason for this could be visualized from the architectural difference of SOA systems when compared to the traditional software development. Additionally, some recent empirical studies pointed out that distributed processing is more complicated than the non-distributed processing. As any form loose coupling make tasks easier, but increases complexity. In the literature, there is a lack of significant work about cost and effort estimation of SOA systems. Addressing the above mentioned issues, two novel effort estimation approaches have been developed by utilizing statistics and machine learning. The first approach deals in utilizing statistical based approach in estimating the development effort of SOA systems from the implication of new proposed metrics and regression models based on some past project data. The second approach deals in employing machine learning based technique. The proposed structure employs an adaptive filter by combining the insights of signals theory with empirical research to find a recommendation scheme for SOA system effort estimation. To the best of our knowledge, this is the first work in literature to solve the problem by adhering basic principles of SOA system design with a proper validation mean. Furthermore, the current testing approaches of SOA systems are inadequate in addressing the complexities associated with the SOA systems. Additionally, the current testing techniques of SOA systems are unable to assure the desired level of trust, which may create a barrier between the service providers and the end users. Therefore, we inspect an abstract formulation of this problem to identify faulty business processes using minimum number of tests for improving the testing effort and fostering trust between the service providers and end users.

Master Thesis

Title	*Dynamic Slicing of Concurrent Aspect-oriented Programs*
Supervisor	Dr. Abhishek Ray (Associate Professor), School of Computer Engineering, Kiit University, Bhubaneswar, Odisha, India
Short Thesis Description	The main *idea* is to deal with *dynamic slicing* of *concurrent aspect-oriented programs*. In this regard, a dependence based intermediate program representation known as Concurrent Aspect-oriented System Dependence Graph (CASDG) has been proposed to represent concurrent aspect-oriented programs. Moreover, an efficient *dynamic slicing algorithm* has been proposed and implemented for computing the *dynamic slices* of the concurrent aspect-oriented programs, appropriately during the runtime. The CASDG is modeled by the main program together with all the *methods*, *constructors*, *used* and *defined* variables present in the *non-aspect code* and all the *pointcuts*, *advices* and *introductions* exist in the *aspect code*. The proposed dynamic slicing algorithm is an extended version of Node Marking Dynamic Slicing (NMDS) algorithm for concurrent object-oriented programs, which is primarily based on *marking* and *un-marking* of the executed nodes in the CASDG.

Achievements, Awards and Honors

May, 2018 - Present	**Institute Post Doctoral Fellowship**, *selected in merit to avail full time institute post doctoral fellowship at the Department of Electrical Engineering and Computer Science (EECS), Indian Institute of Science Engineering and Research (IISER)*, Bhopal, Madhya Pradesh, India.
May, 2018	**My PhD Thesis is indexed in Association for Computing Machinery's Special Interest Group on Software Engineering (ACM SIGSOFT)**, *list of PhD Dissertations*, in the area of Software Engineering.
March, 2018	**Invited Speaker**, *Scientific Writing using Latex - A Technical Development Program (TDP), sponsored by a student chapter*, The International Society for Optics and Photonics (SPIE) organized by, Department of Electronics Engineering, IIT (ISM), Dhanbad.
19th March, 2018	**Sucessfully Defended PhD Thesis**.

December, 2017	**Winter School in Software Engineering (WSSE'2017)**, *Selected in Merit to attend Winter School in Software Engineering out of 350 participants (22/350)*, organized by Tata Research Development and Design Centre (TRDDC), Pune, Maharashtra, India and sponsored by Association for Computing Machinery - India SOFTware Engineering community (ACM-ISOFT).
2014-2018	**Ph.D. Student Representative**, *Computer Science and Engineering Society (CSES Society), Department of Computer Science and Engineering, IIT(ISM), Dhanbad*.
2013–2018	**ISM - JRF Fellowship**, *selected in merit to avail Scholarship, funded by Government of India Government of India (GOI), Ministry of Human Resource and Development (MHRD)*, on the basis of all India written examination and interview conducted by IIT (ISM), Dhanbad, Jharkhand, India.
2005	**AISSCE - 2005**, *secured hightest mark (89/100) in biology*, out of 39 students, of Kendriya Vidyalaya, Puri, Odisha, India.
2004	**House Captain**, *lead Raman House (a Student Activity) with the position of house captain*, at Kendriya Vidyalaya, Puri, Odisha, India.
2003	**KVS Regional Science Exhibition**, *honored with certificate of successful participation*, held at Kendriya Vidyalaya, No. 3, Mancheswar, Bhubaneswar, Odisha, India.
2003	**National Trekking and Adventure Camp**, *participated and successfully completed the trekking and adventure camp organized by Directorate of Mountaineering and Allied Sports Manali, Government of Himachal Pradesh*, held at Himachal Pradesh, India.
2003	**KVS Regional Level Games and Sports Meet**, *participated and bagged runners up position in men's field hockey*, held at Kendriya Vidyalaya, No. 1, Bhubaneswar, Odisha, India.
2002	**Fifth National Science Olympiad**, *honored with certificate of successful participation*, qualified first round (level 1), held on 30th January, 2003 at more than 2050 centres in India and Gulf.
2001	**The Green Olympiad**, *honored with certificate of participation*, sponsored by the ministry of Environment and Forests, Government of India (GOI).

Skill Sets

Languages:	**C, C++, R, HTML, Core Java, Python and AspectJ**.
Operating Systems:	**Windows and Linux**.
Model Checkers:	**NuSMV and PRISM**.
Database:	**MySQL**.
Packages:	**Microsoft Office and LibreOffice**.
Typesetting System:	LaTeX.
Scripting Languages:	**Java Script and VB Script**.
Applications:	**Spreadsheet, IBM Rational Software Architect, Matlab**.
Visualization Tools:	**SPSS, Corel Draw, Origin, Edraw Max, Dia, yEd, ORA and Pajek**.

Teaching Assistantships

ECS202	**Data Structures and Algorithms**, BS-MS 2nd Year (Winter 2020) at IISER Bhopal.
ECS307	**Theory of Computation**, BS-MS 3rd Year (Monsoon 2019) at IISER Bhopal.

ECS302	**Introduction to Software Modeling and Verification**, (Lab Session) using New Symbolic Model Verifier (NuSMV) at IISER Bhopal.
CSC16205	**Database Management Systems Lab**, B. Tech 6th Semester, (Winter 2016-17) at IIT (ISM), Dhanbad.
CSE11301	**C Programming Lab**, B. Tech 1st Semester, (Monsoon 2013, Winter 2015 and 2016) at IIT (ISM), Dhanbad.
CSC15204	**Software Engineering Lab**, B. Tech 5th Semester, (Monsoon 2014, Monsoon 2015 and 7th Semester, Monsoon 2016) at IIT (ISM), Dhanbad.
CSC14202	**Algorithm Design and Analysis Lab**, B. Tech 4th Semester, (Winter 2014) at IIT (ISM), Dhanbad.
CSC13202	**Data Structures Lab**, B. Tech 3rd Semester, (Monsoon 2013), at IIT (ISM), Dhanbad.

Professional Affiliations

2020 – Present	**Professional Member**, *Association for Computing Machinery (ACM)*, Member (#): 7254589.
2016 – Present	**Graduate Student Member**, *Institute of Electrical and Electronics Engineers (IEEE)*, Member (#): 93253963.
2016 – Present	**Student Member**, *Advanced Computing & Communication Society (ACCS)*, Member (#): S1688A1623481.
2016 – Present	**Member**, *Internet Society (ISOC)*.
2015 – Present	**Member**, *India SOFTware Engineering community (ISOFT)*.
2015 – 2020	**Student Member**, *Association for Computing Machinery (ACM)*, Member (#): 7254589.
2015 – Present	**Member**, *International Association of Engineers (IAENG)*, Member (#): 158661.
2015 – Present	**Member**, *Computer Science Teachers Association (CSTA)*.
2015 – 2018	**Student Member**, *Universal Association of Computer and Electronics Engineers (UACEE)*, Member (#): SM10100053768.
2014 – 2017	**Member**, *Computer Science and Engineering Society (CSE Society), ISM Dhanbad*, Member (#): 013/14-15.

Professional Activities

February, 2020	**Author**, *Presented the paper titled "Clustering Glossary Terms Extracted from Large-Sized Software Requirements using FastText", at the 13th Innovations in Software Engineering Conference (ISEC'2020)*, IIITDM, Jabalpur, India.
January, 2020	**Volunteer**, *The Fourth Paradigm : From Data to Discovery*, Bhopal, India.
February, 2019	**Reviewer**, *Future Generation Computer Systems (FGCS)*, Elsevier.
December, 2018	**Reviewer**, *Arabian Journal for Science and Engineering (AJSE)*, Springer.
November, 2018	**Reviewer**, *Journal of Parallel and Distributed Computing (JPDC)*, Elsevier.
February, 2018	**Ad-Hoc Reviewer**, *International Journal of Fog Computing (IJFC)*, IGI Global.

January, 2017	**Ad-Hoc Reviewer**, *International Journal of Web Services Research (IJWSR)*, IGI Global.
December, 2016	**Reviewer**, *Software: Practice and Experience (SPE)*, Wiley.
November, 2016	**Guest Editor**, *Special Issue On: Scalable Computing for Knowledge Discovery, International Journal of Knowledge Discovery on Bioinformatics (IJKDB)*, IGI Global.
June, 2016	**Invited Reviewer**, *International Journal of Computers and Applications*, Taylor & Francis.
August, 2016	**Invited Reviewer**, *International Journal of Rough Sets and Data Analysis (IJRSDA)*, IGI Global.
March, 2016	**Student Volunteer**, 3rd *IEEE International Conference on Recent Advances in Information Technology (RAIT)*, Dhanbad, Jharkhand, India.
December, 2015	**Invited Reviewer**, 3rd *IEEE International Conference on Computing for Sustainable Global Development (INDIACom)*, New Delhi, India.
June, 2014	**External Reviewer**, 2nd *IEEE International Conference on Systems and Informatics (ICSAI)*, Shanghai, China.
March, 2014	**Student Volunteer**, 2nd *International Conference on Recent Advances in Information Technology (RAIT)*, Dhanbad, India.
February, 2011	**Student Volunteer**, 7th *International Conference on Distributed Computing and Information Technology (ICDCIT)*, Bhubaneswar, India.

Workshops and Short Term Courses Attended

27th February, 2020	**Attended** 1 **day workshop co-located at the** 13th **Innovations in Software Engineering Conference (ISEC 2020)**, *on "Software Engineering for Artificial Intelligence"*, organized by Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Jabalpur, Madhya Pradesh, India.
11–16, December, 2017	**Attended** 6 **days winter school sponsored by Association for Computing Machinery, India SOFTware Engineering community (ACM-ISOFT)**, *on "Winter School in Software Engineering (WSSE - 2017)"*, organized by Tata Research Development and Design Centre (TRDDC), Pune, Maharashtra, India.
09–13, February, 2017	**Attended** 5 **days short term course sponsored by Technical Education Quality Improvement Programme - II (TEQIP - II)**, *on "Fundamental Algorithms: Design and Analysis"*, organized by Department of Mathematics, Indian Institute of Technology, Kharagpur, West Bengal, India.
19–23, August, 2015	**Attended** 5 **days short term course**, *on "Network Protocols and their Simulation using NS-2/NS-3"*, organized by Department of Computer Science & Engineering, Indian School of Mines, Dhanbad, Jharkhand, India.
14th February, 2014	**Attended** 1 **day workshop**, *on "Intellectual Property Rights, under TEQIP-II Initiative"*, organized by Indian School of Mines, Dhanbad, Jharkhand, India.
12–14, May, 2014	**Attended** 3 **days workshop**, *on "Recent Trends in Software Testing (RTST-2014)"*, organized by Department of Computer Science & Engineering, National Institute of Technology, Rourkela, Odisha, India.
18–25, March, 2013	**Attended** 7 **days professional skill development programme**, *on "Linux Environment"*, organized by Department of Computer Science & Engineering, Indian School of Mines, Dhanbad, Jharkhand, India.

Publications (Peer-Reviewed Journals)

2018 [1] Rakesh Ranjan Kumar, **Siba Mishra**, and Chiranjeev Kumar. Dec. 2018. "A Novel Framework for Cloud Service Evaluation and Selection Using Hybrid MCDM Methods". In: *Arabian Journal for Science and Engineering* 43.12, pp. 7015–7030.

2017 [2] **Siba Mishra** and Chiranjeev Kumar. July 2018. "Effort Estimation for Service-Oriented Computing Environments". In: *Computing and Informatics* 37.3, pp. 553–580.

2017 [3] Mohit Chawla**Siba Mishra** et al. Dec. 2017. "A Comparison of Data Exchange Mechanisms for Real-Time Communication". In: *International Journal of Rough Sets and Data Analysis (IJRSDA)* 4.4, pp. 66–81.

[4] Rakesh Ranjan Kumar, **Siba Mishra**, and Chiranjeev Kumar. Nov. 2017. "Prioritizing the solution of cloud service selection using integrated MCDM methods under Fuzzy environment". In: *The Journal of Supercomputing* 73.11, pp. 4652–4682.

2016 [5] **Siba Mishra** and Chiranjeev Kumar. 2016. "A novel adaptive structure for SOA system effort estimation". In: *Transactions on Emerging Telecommunications Technologies* 27.8, pp. 1115–1127.

2013 [6] Abhishek Ray, **Siba Mishra**, and Durga Prasad Mohapatra. Jan. 2013. "A Novel Approach for Computing Dynamic Slices of Concurrent Aspect-Oriented Programs". In: *International Journal of Software Engineering and its Applications (IJSEIA)* 7.1, pp. 13–32.

2012 [7] Abhishek Ray, **Siba Mishra**, and Durga Prasad Mohapatra. Sept. 2012. "A Novel Approach for Computing Dynamic Slices of Aspect-Oriented Programs". In: *International Journal of Computer Information Systems (IJCIS)* 5.3, pp. 6–12.

Publications (Conference Proceedings)

2020 [1] Kushagra Bhatia, **Siba Mishra**, and Arpit Sharma. Feb. 2020. "Clustering Glossary Terms Extracted from Large-Sized Software Requirements Using FastText". In: *Proceedings of the 13th Innovations in Software Engineering Conference (Formerly Known as India Software Engineering Conference) [ISEC'2020], Jabalpur, India*.

[2] **Siba Mishra** and Arpit Sharma. Mar. 2020. "Automatic Word Embeddings-Based Glossary Term Extraction from Large-Sized Software Requirements". In: *Proceedings of the 26th International Working Conference on Requirements Engineering: Foundation for Software Quality [REFSQ'2020], Pisa, Italy*, pp. 203–218.

2019 [3] **Siba Mishra** and Arpit Sharma. Sept. 2019. "On the Use of Word Embeddings for Identifying Domain Specific Ambiguities in Requirements". In: *Proceedings of the 27th IEEE International Requirements Engineering Conference Workshops [REW'2019], Jeju Island, South Korea*, pp. 234–240.

2017 [4] **Siba Mishra** and Chiranjeev Kumar. Sept. 2017. "Improving the trust of end users in enterprise SOA using combinatorial group testing methods". In: *Proceedings of the 12th International Conference on Digital Information Management [ICDIM'2017], Fukuoka, Japan*, pp. 144–149.

2014 [5] **Siba Mishra** and Chiranjeev Kumar. Nov. 2014. "Estimating development size and effort of business process service-oriented architecture applications". In: *Proceedings of the 2nd International Conference on Systems and Informatics [ICSAI'2014], Shanghai, China*, pp. 1006–1011.

[6] **Siba Mishra**, Urvashi Sharma, and Chiranjeev Kumar. Feb. 2014. "A Novel Approach for Computing Dynamic Slices of Web Based Applications". In: *Proceedings of the Fourth International Conference on Advanced Computing Communication Technologies [ACCT'2014], Rohtak, India*, pp. 153–158.

2013 [7] Abhishek Ray, **Siba Mishra**, and Durga Prasad Mohapatra. Feb. 2013. "Architectural Aspect-Oriented Dynamic Slicing". In: *Proceedings of the Fourth Workshop on Advances in Model-Based Software Engineering [WAMBSE'2013], co-located at [ISEC'2013], New Delhi, India*. Vol. 11. Infosys Labs Briefings.

Manuscripts (Accepted Without Issue and Unpublished)

[1] Arpit Sharma and **Siba Mishra**. "A Generalized Semantic Filter for Glossary Term Extraction from Large-Sized Software Requirements". [**Submitted** to the 14th Innovations in Software Engineering Conference (ISEC'2021)].

[2] **Siba Mishra** and Arpit Sharma. "Crawling Wikipedia Pages to Train Word Embeddings Model for Software Engineering Domain". [**Submitted** to the 14th Innovations in Software Engineering Conference (ISEC'2021)].

References

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Personal Details

Name:	Siba Mishra
Date of Birth:	10th December, 1987
Sex:	Male
Father's Name:	Manmohan Mishra
Mother's Name:	Minakhi Mishra
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Present Address:	At: Room No: 416 Academic Building - 1 Department of EECS IISER Bhopal Bypass Road, Bhauri Bhopal - 462066 Madhya Pradesh, India
Nationality:	Indian
Hobbies:	Playing Football, Badminton and Cycling
Marital Status:	Married
Languages Known:	Odia, Hindi and English

Declaration

I hereby declare that the above-mentioned information is correct up to my knowledge, and I bear the responsibility for the correctness of the above-mentioned particulars.

Siba Mishra

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Last Update: 20/09/2020 at 17:16:11