Pavan Kumar *Curriculum Vitae*

PERSONAL INFORMATION

NAME: Pavan Kumar

FATHER'S NAME: Sri R. L. Srivastava

MOTHER'S NAME: Smt Janki Devi

CITIZENSHIP : Indian

CONTACT (Email):
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PROFILE

Objective	Seeking challenges that utilizes my technical skills and offers me an opportunity to explore new ways that would enhance my intellectual and working capabilities.
Biography	
	I did M.Sc. in Bioinformatics from University of Allahabad, Allahabad (U.P.) and subsequently obtained M.Tech. IT (*spl. Bioinformatics*) degree from Indian Institute of Information Technology Allahabad (U.P.) INDIA, in 2007. I have completed my PhD thesis at Indian Institute of Technology Roorkee (Uttarakhand) INDIA, in the field of computational bioprocess engineering. I have presented several papers in National and International conferences, got *Young Scientist Award* in National Conference on Biotechnology and Biodiversity 2012, Govt. Science College, Rewa (M.P.). My prime research field was associated with modeling and simulation of streptokinase production and analysis of various parameters related to bioreactor system. Being indulged in the field of Bioinformatics from past several years I acquired theoretical as well as application base knowledge of this field. I made effort to understand the evolved algorithms and tools used in drug designing and sequence annotations. I used programming skills in software environment to obtain suitable solutions via simulation.

EDUCATION

Educational Record:

- **Ph.D.:** Computation Bioprocess Engineering, **IIT Roorkee**, 2014
  Title: *"Modeling and Simulation of Large Scale Streptokinase Production Using E. coli as a Host"*

- **M.Tech.:** IT *spl. Bioinformatics*, **IIIT Allahabad**, CGPI 8.04/10, (2007)

- **M.Sc.:** Bioinformatics, **University of Allahabad**, Allahabad, 68.12%, (2004, *session late by one yr.*)

- **B.Sc.:** Chemistry, Botany and Zoology, **University of Gorakhpur**, Gorakhpur

KEY SKILLS

Programming Languages: C, C++, Matlab R2010a, Perl, Python, Bioperl, Biopython, MySQL

Markup Language: HTML

Operating Systems: Windows (XP, Vista, 7, 8), Linux (Fedora core), MS-DOS

Software Tools Set (Windows): SPDV Viewer, ClustalX, Modeller, AutoDoc, CHARMM, Amber, R-Package, Design Expert 7.0, GA, ANN toolbox etc

AREA OF WORK

- ✓ Bioprocess Modeling
- ✓ Bioreactor Operation
- ✓ Metabolic Pathway
- ✓ Simulation of Dynamical System
- ✓ Bio-statistical Methods
- ✓ Process and Model Optimization (e.g. HMM etc)
- ✓ Computational Neuroscience

- ✓ Artificial Intelligence (ANN, GA, etc)
- ✓ Computer Aided Drug Designing
- ✓ Genomics and Proteomics
- ✓ Biological Database Analysis
- ✓ Sequence Analysis
- ✓ Structural Biology
- ✓ Biochemistry

PROJECTS

- Worked on Project as **SRF** sponsored by **DBT Govt. of India**, associated to *Bioprocess Modeling and Simulation* from April 24th 2008 to August 13th 2010.

- M.Tech. thesis on "*Optimization of HMM Parameters Using Genetic Algorithm to Increase its Efficiency in Protein Secondary Structure Prediction*".

- Project and dissertation of Master of Science on "*Comparative Modeling of Calmyrin Proteins*".

ACHIEVEMENTS

- ✓ Qualified   GATE 2008 Exam, Percentile 97.56, GATE Score: 458.
- ✓ GATE 2004 Exam, Percentile 97.57, All India Rank 112
- ✓ UGC-CSIR NET 2005
- ✓ UGC-CSIR NET 2003
- ✓ Qualified CPMT 2003

MEMBERSHIP

- ✓ Member, International Association of Engineers (IAENG),

   ID#: 108307 (http://www.iaeng.org)

- ✓ Member, International Institute of Informatics and Systemics (IIIS), Orlando, Florida, USA

   ID#: 323217 (http://www.iiis.org/iiis/Members.asp)

DECLARATION

I hereby declare that the information provided above is true to the best of my knowledge and belief.

(Pavan Kumar)

PUBLICATIONS

PATENT:

- ✓ **Patent Application Number 3306/DEL/2013, published on 27/12/2013. Patent filed in the field of modeling a stereo-acoustic imaging system.**

JOURNALS AND CONFERENCES:

[1]. P. Kumar and S. Ghosh, "Population dynamics model for plasmid bearing and plasmid lacking cells for streptokinase production in continuous flow stirred tank bioreactor", International Journal of Engineering, Science and Technology (IJEST), **Multicraft Publisher**, Vol. 2, No. 5, pp. 118-127, 2010. (**ISSN: 2141-2839 (Online); ISSN: 2141-2820 (Print)**) (**5 Citations** *viz.* **Elsevier, Taylor Francis, Springer, IEEE and IIIS**)

[2]. P. Kumar and S. Ghosh, "Use of Simulation and Intelligence Based Optimization Approach in Bioprocess", Soft Computing for Problem Solving (SocProS-2013), **Springer Series, Advances in Intelligent and Soft Computing**, Vol. 2, pp. 349-364, 2013. (**ISSN: 1867-5662, ISBN: 978-81-322-1768-8**)

[3]. P. Kumar and S. Ghosh, "Bioprocess System Dynamics Based Computational and Statistical Models", **Elsevier Procedia of Science and Technology,** IMS-2013, pp. 162-165, 2013. (**Print ISBN: 978-93-5107-162-4**)

[4]. P. Kumar and S. Ghosh, "Application of Neural Network and Genetic Algorithm Based Approaches to Bioprocess", **IEEE,** ICICT- 2014, pp. 162-167. (**ISBN: 978-1-4799-2899-6**) (**1Citation in Springer**)

[5]. P. Kumar and S. Ghosh, "Modeling of Bioprocess for Streptokinase Production Using Mechanistic and Neural Network Approaches", 3rd International Multi-Conference on Complexity, Informatics and Cybernetics (IMCIC), Vol. 1, pp. 161-166, March 25th-28th, 2012, International Institute of Informatics and Systemics (**IIIS**), Orlando, Florida, USA. (**ISBN-13: 978-1-936338-53-5**)

[6]. P. Kumar and S. Ghosh, "Application of Computational Approaches to improve Streptokinase Production Process", Proceedings of World Congress on Biotechnology (**Bright ICE Group**), May. 4th-6th, 2012, Hyderabad, INDIA.

[7]. P. Kumar and S. Ghosh, "Application of Computational Means to Identify Bioprocess Problems", 15th International Biotechnology Symposium and Exhibition (**IBS-2012**), pp. 66, September 16th-21st, 2012, Daegu, S. KOREA.

[8]. P. Kumar and S. Ghosh, "Use of Statistical and Computational Intelligence Based Optimization Technique to Increase Streptokinase Production", **J. Biotechnol. Biomater.,** 3rd World Congress on Biotechnology (**OMICS Group Conferences**), Vol. 2, Issue 6, pp. 244, September 13th -15th, 2012, Hyderabad, INDIA. (**ISSN: 2155-952X**)

[9]. P. Kumar and S. Ghosh, "Estimation of Streptokinase Production during Fermentation Process Using Hybrid Approach", 1st International Science Congress (**ISC-2011**), pp. 63, Dec. 24th-25th, 2011, Indore, INDIA.

[10]. P. Kumar and S. Ghosh, "Modeling of Key Factors Governing *E. coli* Recombinant Strain Growth Dynamics in Bioreactor Environment", International Congress on Environmental Research (**ICER-2011**), pp.200, Dec. 15th -17th, 2012, Surat, INDIA.

[11]. P. Kumar and S. Ghosh, "Application of Neural Network to improve Recombinant enzyme production", Proceedings of National Conference on Recent Trends in Mathematics and Statistics (**CORTMAS-2012**), pp. 29, March 12th-13th, 2012, Department of Mathematics, DDU University Gorakhpur, INDIA.

[12]. P. Kumar and S. Ghosh, "Statistical Optimization of *E. coli* Strain Growth in Submerged Culture Using Response Surface Methodology", CORTMAS-2012, pp. 30, March 12th-13th, 2012, Department of Mathematics, DDU University Gorakhpur, INDIA.

[13]. P. Kumar and S. Ghosh, "Enhanced Recombinant Enzyme Production using Computational Approach", Proceedings of National Conference on Global Challenges: Role of Science and Tech. in giving their Solutions (**GCRSTS–2012**), pp. 16, March 3th-4th, 2012, Bhiwani, INDIA.

[14]. P. Kumar and S. Ghosh, "Bioprocess Computational Models to Identify Role of Various Parameters in

Streptokinase Production", Proceedings of National Conference on Biotechnology and Biodiversity, pp. 88-108, March 13th-14th, 2012, Govt. New Science College, Rewa, INDIA. (**Young Scientist Award for Best Paper in the Conference**)

[15]. P. Kumar, "An Approach to Plot Long Term Memory Dynamics", 11th World Multi-conference on Systemic Cybernetics and Informatics Jointly with 13th Int. Conference on Information System Analysis and Synthesis (ISAS), Vol. IV, pp. 125-128, 2007, Orlando, Florida, USA. (**ISBN-10: 1-934272-14-0 (Collection), ISBN-10: 1-934272-18-3 (Volume)**)

[16]. P. Kumar and D. Kumar, "An approach to Model a Pseudo- visual Retrieval System Based on Acoustic Signal for Visually Challenged People", 14th **WMSCI**, Vol. II, pp. 11-16, 2010, Orlando, Florida, USA. (**ISBN-13:978-1-934272-97-8 (Collection), ISBN-13: 978-1-934272-99-2 (Volume II)**)

[17]. P. Kumar and D. Kumar, "Decision Support Systems Engineering Applied to Editorial Decision", 14th WMSCI, Vol. IV, pp. 21-23, 2010, Orlando, Florida, USA. (**ISBN-13:978-1-934272-97-8 (Collection), ISBN-13: 978-1-936338-10-8 (Volume IV)**)

[18]. D. Kumar and P. Kumar, Relevance of Glucose Level Variation Trend in Diabetic Patient's Blood and Onset of Diabetic Retinopathy Problems, 3rd International Multi-Conference on Complexity, Informatics and Cybernetics (**IMCIC**), Vol. 1, pp. 59-63, March 25th-28th, 2012, International Institute of Informatics and Systemics (IIIS), Orlando, Florida, USA. (**ISBN-13: 978-1-936338-53-5**)

[19]. P. Kumar, D. Kumar and P. Johari, "Application of computational means to develop acoustic approach to aid visually impaired", **AAO-APAO Conference**, 2012, Vol. , pp. 183, **American Academy of Ophthalmology**, Chicago, USA.

[20]. D. Kumar, P. Kumar and P. Johari "An Intelligence Based Decision System for Evaluating Innovative Research", (4th) Int'l Conference of the **AGMS**, pp. 71-76, March 4th-5th, 2013, at University of California, Berkeley, USA. (**Print ISSN: 2150-846, Online ISSN: 2150-8488**)

Participation in Workshop and Symposia

- ❑ Participated in a two days Workshop on *Recent Advances in Computational Biology and Structural Based Drug Designing*, conducted at Biotechnology 2012 Conference, held during September 13-15, 2012, Hyderabad, INDIA.

- ❑ Participated in Academic Lectures and Interaction Sessions at 3rd Science Conclave: *A Congregation of Nobel Laureates*, December 08-14, 2010, at Indian Institute of Information Technology Allahabad, INDIA.

- ❑ Participated in *National Conference on Bioinformatics 2007* at IIIT Allahabad, INDIA.