Curriculum Vitae

Ahsan Habib Polash

Doctoral Student, Kyoto University

1 Department of Radiation Genetics, Graduate School of Medicine

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Principal Research Areas:

- Computational Biology, Genomics, Transcriptomics. Application of NGS for studying gene regulation.
- Cheminformatics/Chemoinformatics, Computational toxicology. Employ machine learning and structure based approaches for predicting activity of compounds.
- Combine genetics and drug discovery through application of the above techniques on clinical or preclinical data.
- Traceability and interpretability in machine learning.
- Development of practical tools for data visualization.

Technical Skills:

I. NGS data analysis (CAGE, RNA-Seq, ChIP-Seq), Transcriptomics data curation and analysis from public databases (TCGA, ENCODE).

II. Data extraction/curation (RDKit and OpenEye Chemistry Toolkit), SAR analysis, 2D and 3D ligand similarity, Machine learning (Active learning, RF, SVM, DNN; scikit-learn, TensorFlow).

III. DNA/RNA extraction, Molecular cloning, PCR, Immunostaining, Chromosome aberration assay, Clonogeninc cell survival assay.

Computer Skills:

I. Linux and Windows OS with common applications.

II. Python (Fluent), R (Intermediate), Bash shell (Fluent), HTML (Intermediate).

Summary of Graduate Research Career:

- PhD Topics: Artificial Intelligence for drug discovery and predictive toxicology.
- Masters Thesis Topics: Analysis of salt stress responsive molecular pathways in Jute (*Corchorus olitorius* var. *O-72*).

Educational and Career History (most recent first):

- 2017 - present: **Doctoral Student**, Graduate School of Medicine, Kyoto University.
  Expected completion: by December 2020.
- 2016 - 2017: Research Student, Department of Radiation Genetics, Graduate School of Medicine, Kyoto University.
- 2013 - 2016: **Lecturer**, School of Life Sciences, Independent University Bangladesh.
- 2012 - 2013: Research Associate, Molecular Biology Lab, Department of Biochemistry and Molecular Biology, University of Dhaka (BMB-DU).
- 2010 - 2012: Masters of Science in Biochemistry and Molecular Biology, BMB-DU.
- 2006 - 2010: Bachelor of Science in Biochemistry and Molecular Biology, BMB-DU.

Selected Research Publications:

1. (2020) **AhsanHabib Polash**, TakumiNakano. Christin Rakers ShunichiTakeda, J.B.Brown.
   Active learning efficiently converges on rational limits of toxicity prediction and identifies patterns for molecule design. Computational Toxicology 2020, (15), 100129.
2. (2019) **Ahsan Habib Polash**, Takumi Nakano, Shunichi Takeda, JB Brown.
   Applicability Domain of Active Learning in Chemical Probe Identification: Convergence in Learning from Non-Specific Compounds and Decision Rule Clarification. Molecules 2019, 24(15), 2716.
3. (2019) **Ahsan Habib Polash**, Takumi Nakano, Shunichi Takeda, JB Brown.
   Systematic approaches to build predictive models for rat oral toxicity. CICSJ Bulletin 2019, 37(1), 12.
4. (2018) Christin Rakers, Rifat Ara Najnin, **Ahsan Habib Polash**, Shunichi Takeda, JB Brown.
   Chemogenomic Active Learning's Domain of Applicability on Small, Sparse qHTS Matrices: A Study Using Cytochrome P450 and Nuclear Hormone Receptor Families. ChemMedChem 2018, 13, 511.
   *Designated Very Important Paper based on peer review reports.
5. *Equally contributed book chapter,*
   (2018) Rasel Al Mahmud, Rifat Ara Najnin, **Ahsan Habib Polash.**
   A Survey of Web-Based Chemogenomic Data Resources. In: Brown J. (eds) Computational Chemogenomics Methods in Molecular Biology, vol 1825. Humana Press, New York, NY.
6. (2015) Rifat Ara Najnin, Farhana Shafrin, **Ahsan Habib Polash**, Aubhishek Zaman, Amzad Hossain, Taha Taha, Rajib Ahmed, Jannatul Ferdoush Tuli, Rashu Barua, Abu Ashfaqur Sajib, Haseena Khan.
   A diverse community of jute (Corchorus spp.) endophytes reveals mutualistic host–microbe interactions. Annals of Microbiology 65: 1615.
7. (2013) Chinmoy Saha, **Ahsan Habib Polash**, Md Tariqul Islam, Farhana Shafrin.
   In silico prediction of structure and functions for some proteins of male-specific region of the human Y chromosome. Interdisciplinary Sciences: Computational Life Sciences 5: 258.
8. (2013) Md Rezaul Islam, **Ahsan Habib Polash**, M Sadman Sakib, Chinmoy Saha, Atiqur Rahman.
   Computational identification of Brassica napus pollen specific protein Bnm1 as an allergen. International Journal on Bioinformatics & Biosciences (IJBB) Vol.3, No.2.

Language Skills: Bengali (Native), English (Fluent), Japanese (elementary)

Future Career Goals and Strategies in Research:

- Contribution to academia through teaching and research
- Employ machine learning and structure based approaches for solving biology questions.
- Interested largely in advanced computational biology, i.e. next-generation sequencing, machine learning.
- Contribution to the fields of genetics and drug discovery through application of the above techniques on clinical or preclinical data.
- Development of practical tools for data visualization aimed at both students and researchers.

Personality, Work Habits, and Leadership Experience:

- Considered as a friendly and open minded person by faculty colleagues and students.
- Belief that a positive mindset can provide a significant boost to group performance.
- Capable of making tailored presentations on topics depending on the audience.
- Highly flexible in adapting to the personality of the person or colleague I am exchanging with.
- Able to maintain a dynamic yet well-organized working environment.
- Experience in leading and motivating groups of researchers or community members.
- As a biologist turned informatician, I recognize the critical importance of documentation in computer code, which leads to usability and improved work efficiency in a group. I stress high levels of self-evident documentation.