

CONTACT INFORMATION	Tokyo, Japan +81-80-9791-8581 ✉:alaminnipu	Homepage: <a href="https://al-amin.tech/">https://al-amin.tech/</a> Linkedin: <a href="https://www.linkedin.com/in/khandakermd/">www.linkedin.com/in/khandakermd/</a> GitHub: <a href="https://github.com/eNipu/">https://github.com/eNipu/</a> ✉ E-mail: <a href="mailto:khandaker@s.okayama-u.ac.jp">khandaker@s.okayama-u.ac.jp</a>
EDUCATION	<p><b>Okayama University</b>, Okayama, Japan 2015–2019</p> <ul style="list-style-type: none"> <li>• Ph.D. in <b>Public Key Cryptography</b>, GPA: <b>4.0/4.0</b>.</li> <li>• Advisor: Professor Yasuyuki Nogami.</li> <li>• Ph.D. thesis: <b>A Study of Efficient Pairing Computation Algorithm Using KSS Curves</b></li> </ul> <p><b>Jahangirnagar University</b>, Bangladesh. 2007–2012</p> <ul style="list-style-type: none"> <li>• B.Sc., Computer Science and Engineering. GPA: <b>3.71/4</b> –163 credits, Rank: <b>4/40</b>.</li> </ul>	
JOB EXPERIENCE	<ul style="list-style-type: none"> <li>• <b>Research Engineer, R&amp;D EAGLYS Inc.</b> Tokyo, Japan 2020.11–present           <ul style="list-style-type: none"> <li>◦ <i>DataArmor GateDB</i>: A database proxy application that enables users to perform SQL queries on encrypted data without storing the key to database server.</li> <li>◦ Key contributions:               <ul style="list-style-type: none"> <li>* Implemented <b>Homomorphic-encryption(HE)</b> to perform ‘SQL aggregate functions’.</li> <li>* Reduced the bulk insertion and encryption time by 5 times by efficient implementation of HE algorithms and multi-processing in Rust.</li> <li>* Implemented <b>Lifted-ElGamal</b> over prime field as <b>Somewhat-Homomorphic-Encryption</b> (using BLS-12 elliptic curve pairing) for Homomorphic addition of cipher-text.</li> <li>* Improved the bulk data transmission using gRPC between client and the proxy.</li> </ul> </li> <li>◦ <i>DataArmorGate AI</i>: allows to get inference from AI and ML models using encrypted data.</li> <li>◦ Key contributions:               <ul style="list-style-type: none"> <li>* Implemented the performance critical encryption module in C++ which speeds up the inference performance by 30%.</li> <li>* Implementation Homomorphic-Encryption Library bindings in the product.</li> </ul> </li> </ul> </li> <li>• <b>Systems Development Engineer</b> Cardservice Inc. Tokyo, Japan 2019.04–2020.10           <ul style="list-style-type: none"> <li>◦ Designing and evaluating security architecture for payment systems.</li> <li>◦ Improving performance of the exiting product.</li> </ul> </li> <li>• <b>Associate Software Engineer</b> Metatude Asia Ltd. Dhaka, under <b>Viadesk BV</b>, The Netherlands 2012.05–2015.09           <ul style="list-style-type: none"> <li>◦ Project Viadesk: Designed and developed a mobile client of a intranet service.</li> <li>◦ Project <b>Coursepath</b>: Developed prototype of an online E-learning platform for private corporation.</li> </ul> </li> </ul>	
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li>• <i>Programming Languages</i>:           <ul style="list-style-type: none"> <li>– Working proficiency: C/C++, Python</li> <li>– Limited working proficiency: Rust, C#, Java, Javascript, Objective-C</li> </ul> </li> <li>• <i>Software Engineering</i>:           <ul style="list-style-type: none"> <li>– Basic understanding of Scrum Framework, SOLID principle and common design patterns.</li> <li>– Working proficiency of VCS(Git), container technology (Docker).</li> <li>– Unix build system (CMake, Autotools), cloud service (Azure, AWS).</li> <li>– Working proficiency in SQL (PostgreSQL, MySQL).</li> <li>– Basic Linux system administration.</li> </ul> </li> </ul>	

RESEARCH EXPERIENCE	<ul style="list-style-type: none"> <li>• 5+ years of academic and industry research experience in public-key-cryptography and secure computing while working on diverse applications from data analytics to machine learning.</li> <li>• Currently working on designing and implementing PoC using the state-of-the-art research on Homomorphic-Encryption and Secure Computing for Big-Data analytic and Privacy-Preserving Machine Learning.</li> <li>• Previously worked on mathematical optimization of pairing-based security protocols (BLS-signature) used in blockchain.</li> </ul>
RESEARCH PROFILES	<ul style="list-style-type: none"> <li>• <a href="#">ResearchGate</a></li> <li>• <a href="#">Google Scholar</a> [<i>Complete publication list</i>]</li> <li>• <a href="#">ORCID</a></li> </ul>
SELECTED PUBLICATIONS	<ol style="list-style-type: none"> <li>1. <b>Md. Al-Amin Khandaker</b> and Yasuyuki Nogami. “An Improvement of Scalar Multiplication by Skew Frobenius Map with Multi-Scalar Multiplication for KSS Curve”. In: <i>IEICE Transactions</i> 100-A.9 (2017), pp. 1838-1845. DOI: <a href="#">10.1587/transfun.E100.A.1838</a>.</li> <li>2. <b>Md. Al-Amin Khandaker</b>, Yuki Nanjo, Loubna Ghammam, Sylvain Duquesne, Yasuyuki Nogami, and Yuta Koda. “Efficient Optimal Ate Pairing at 128-Bit Security Level”. In: <i>INDOCRYPT 2017</i>. Ed. by Arpita Patra and Nigel P. Smart. Vol. 10698. LNCS. Springer, Heidelberg, Dec. 2017, pp. 186–205. DOI: <a href="#">10.1007/978-3-319-71667-1_10</a>. (Acceptance rate <math>19/75 \approx 25\%</math>)</li> <li>3. <b>Md. Al-Amin Khandaker</b>, Hirotaka Ono, Yasuyuki Nogami, Masaaki Shirase, and Sylvain Duquesne. “An Improvement of Optimal Ate Pairing on KSS Curve with Pseudo 12-Sparse Multiplication”. In: <i>ICISC 2016</i>. Ed. by Seokhie Hong and Jong Hwan Park. Vol. 10157. LNCS. Springer, Heidelberg, Nov. 2016, pp. 208–219. DOI: <a href="#">10.1007/978-3-31953177-9_11</a>. (Acceptance rate <math>18/69 \approx 26\%</math>)</li> <li>4. <b>Md. Al-Amin Khandaker</b>, Yasuyuki Nogami, Hwajeong Seo, and Sylvain Duquesne. “Efficient Scalar Multiplication for Ate Based Pairing over KSS Curve of Embedding Degree 18”. In: <i>WISA 2016</i>. Ed. by Dooho Choi and Sylvain Guilley. Vol. 10144. LNCS. Springer, Heidelberg, Aug. 2016, pp. 221–232. DOI: <a href="#">10.1007/978-3-319-56549-1_19</a>. (Acceptance rate <math>31/61 \approx 51\%</math>)</li> </ol>
HONORS AND AWARDS	<ul style="list-style-type: none"> <li>• Dean’s Scientific Award for Ph.D. thesis. 2019</li> <li>• Japan Govt. MEXT scholarship for Doctor’s course. 2015</li> <li>• Bangladesh Govt. merit scholarship from grade 6 until undergraduate graduation in 2012.</li> </ul>
REFERENCES	<p>Professor <b>Yasuyuki Nogami</b>  Okayama University  E-mail: yasuyuki.nogami@okayama-u.ac.jp</p> <p>Professor <b>Takuya Kusaka</b>  Okayama University  E-mail: kusaka-t@okayama-u.ac.jp</p> <p>Dr. <b>Claude Gravel</b>  EAGLYS Inc.  E-mail: claudegravel1980@gmail.com</p>