
PhD position (M/F) – Thesis offer (M/F)

(Reference: DS_RA_PhD_Oligoarchive_092019)*

Research topics	DNA storage, Data management, Bioinformatics
Department	Data Science
Publication date	20 September 2019
Start date	ASAP
Duration	Duration of the thesis
Description	<p>Today, we live in a data-driven world. The “digital universe” (all digital data worldwide) is forecast to grow to over 160 zettabytes by 2025. As the rate of data generation far outpaces the rate of improvement in storage density of media like HDD and tape, researchers have started investigating new media types that can store data at a very low cost.</p> <p>Synthetic DNA is one such storage media that has received some attention recently due three key properties. First, it is an extremely dense three-dimensional storage medium that can be up to eight orders of magnitude denser than tape. Second, DNA can last several centuries in cold, dry storage environments; HDD and tape have life times of five and thirty years. Third, it is very easy, quick, and cheap to replicate data stored in DNA; tape and HDD have bandwidth limitations that result in hours or days for copying large EB-sized data archives.</p> <p>We are looking for a talented Ph.D. candidate to help us advance state of the art on various aspects of DNA storage. The candidate will be embedded in the Data Science department at EURECOM and will be a part of the EU-funded FET project OligoArchive (https://www.oligoarchive.eu/) that focuses on developing a DNA-based archival system for relational databases. The candidate will be supervised by Dr. Raja Appuswamy and pursue various research activities, like developing efficient encoding schemes for storing structured data, designing scalable algorithms for decoding data from sequenced reads, investigating techniques for implementing access methods over DNA storage, etcetera.</p>
Requirements	<ul style="list-style-type: none">• Masters degree in Computer Science or Bioinformatics with strong algorithmic knowledge (Knowledge of genomic data analysis is a plus)• Excellent programming skills in C++ (Parallel programming with GPUs is a plus)• Excellent written and oral communication skills (English)
What we offer	<ul style="list-style-type: none">• Strong international research environment with supervision from experienced faculty.• Opportunities to collaborate with renowned scientists worldwide.• Well-paid Ph.D position, in an area known for both its beauty and tech ecosystem (Sophia Antipolis).
Application	<p>The position is available immediately, and the application evaluation will also start immediately, so early applications are encouraged. Interested individuals should submit the following documents (in English):</p> <ul style="list-style-type: none">• Curriculum Vitae, including your current contact address, transcript of certificates and grades (with a list of university courses taken), and previous publications (if any)• Motivation letter including research and education perspectives• Contact information for 2 referees at your current and/or previous affiliations <p>Applications should be submitted by e-mail to raja.appuswamy@eurecom.fr and secretariat@eurecom.fr with the reference: DS_RA_PhD_ Oligoarchive_092019</p>
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EURECOM is a French graduate school and a research center in digital sciences based in the international science park of Sophia Antipolis, which brings together renowned universities such as Télécom ParisTech, Aalto University (Helsinki), Politecnico di Torino, Technische Universität München (TUM), Norwegian University of Science and Technology (NTNU), Chalmers University (Sweden) and Czech Technical University in Prague (CTU). The Principality of Monaco is a new institutional member. The Institut Mines-Télécom is EURECOM's founding member.

EURECOM benefits from a strong interaction with the industry through its specific administrative structure: Economic Interest Group (kind of consortium), which brings together international companies such as: Orange, BMW Group Research & Technology, Symantec, Monaco Telecom, SAP, IABG.

EURECOM deploys its expertise around three major fields: Digital Security, Data Science and Communication Systems. EURECOM is particularly active in research in its areas of excellence while also training a large number of doctoral candidates. Its contractual research is recognized across Europe and contributes largely to its budget.

Thanks to its strong ties set up with the industry, EURECOM was awarded the “Institut Carnot” label jointly with the Institut Telecom right from 2006. The Carnot Label was designed to develop and professionalize cooperative research. It encourages the realization of research projects in public research centers that work together with socioeconomic actors, especially companies.