Apostolou Karampelis Konstantinos, has graduated from the Department of Biology of the National and Kapodistrian University of Athens, amongst the top 10% of his colleagues. He has worked at the "Attikon" University Hospital, contributing to a research program concerning effective therapeutic approaches against multidrug resistant *Pseudomonas aeruginosa* infections. Following a competitive call, in which he came first, he received a scholarship at the NCSR "Demokritos", in order to conduct his thesis in computational biology and genome analysis at the Institute of Biosciences and Applications. His is working at the Theoretical Biology and Computational Genomics Laboratory.

Current research activity: He is studying the consistency of the 2nd Chargaff's law, also known as 2nd parity rule (PR2), along chromosomes from an extensive bacteria collection. His study focuses on the deviations from PR2 and their significance as a means to identify asymmetries in substitution patterns between the two DNA strands. Correlations of these asymmetries with specific molecular mechanisms are also examined. Various approaches are applied in order to separate the effect of selection and mutation in shaping compositional skews along bacterial chromosomes. In this context, possible implications of compositional skews in phylogenetic reconstruction are considered.
For the purposes of this study, a suite of programs has been developed to analyze massive genomic data. Proper algorithms based on statistics and information theory are implemented for distributions comparison, signal processing, breakpoints detection, clustering and tree construction.

Title of the Ph.D thesis: A Study of Compositional Patterns, Distributions and Symmetries of Nucleotide Clusters at Whole-Genome Scale.