

# Ancestry and Genomics

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MARCOS

# About Me

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Bachelor of Engineering (Honors) in Computer Science – Birla Institute of Technology & Science, Pilani, India – 2003-2007

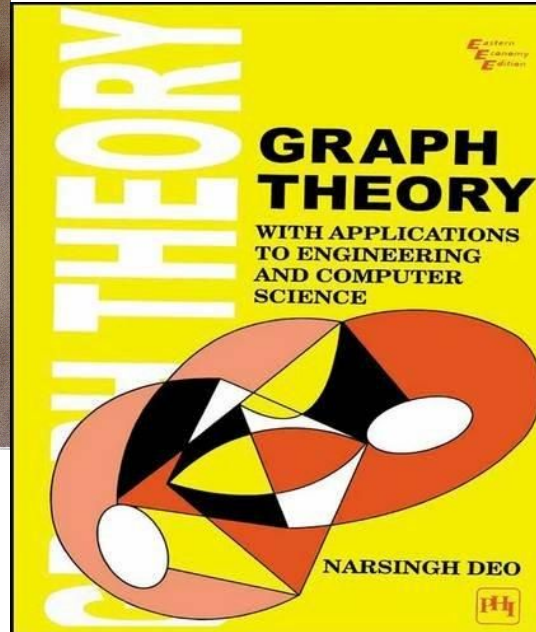
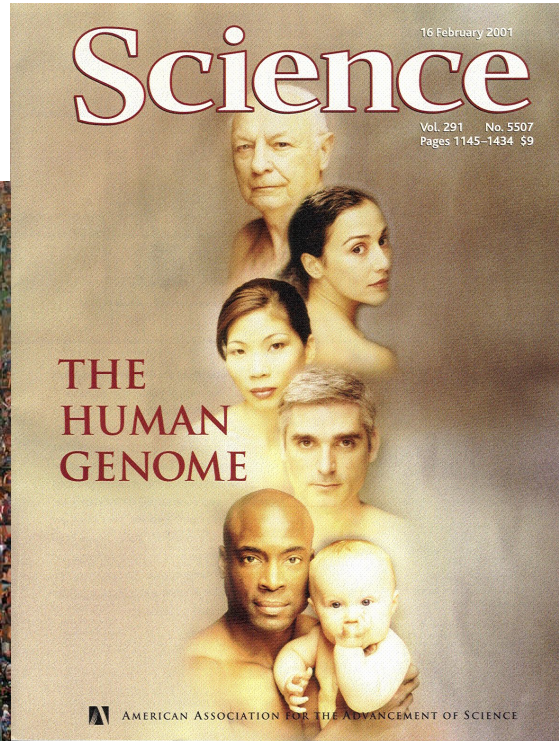
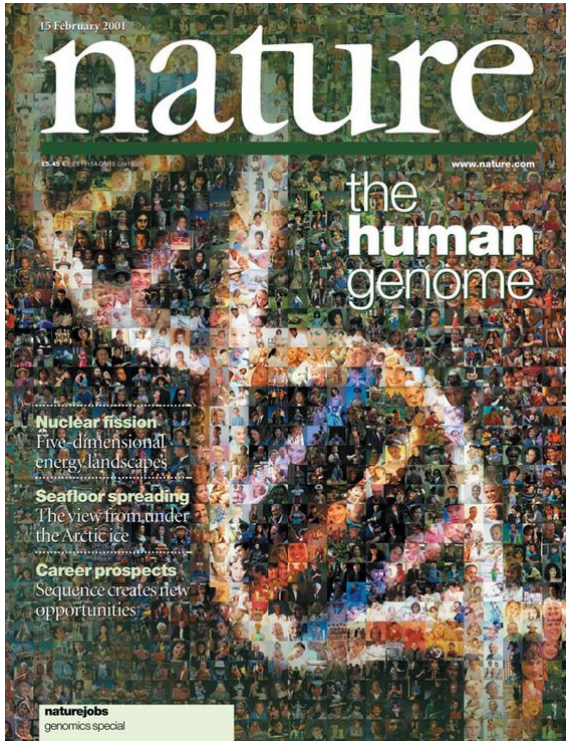
Junior Research Associate – Infosys Technologies Ltd., India – 2007-2008

PhD in Bioinformatics and Computational Biology (Major), Genetics (Minor) – Iowa State University - 2008-2013

Postdoctoral Associate/Research Assistant Professor – Center for Computational Genetics and Genomics, Temple University – 2013-2016

Assistant Professor – Department of Biological Sciences, California State University San Marcos – 2016 - now

# My fascination with “big-data”



On Spanning Trees with Constraints and Applications to  
Phylogeny

by

ARUN.S  
2003A7PS230

Under the guidance of

**Prof. Shibashish Chowdury**  
Assistant Professor,  
Department of Biological Sciences,  
BITS Pilani

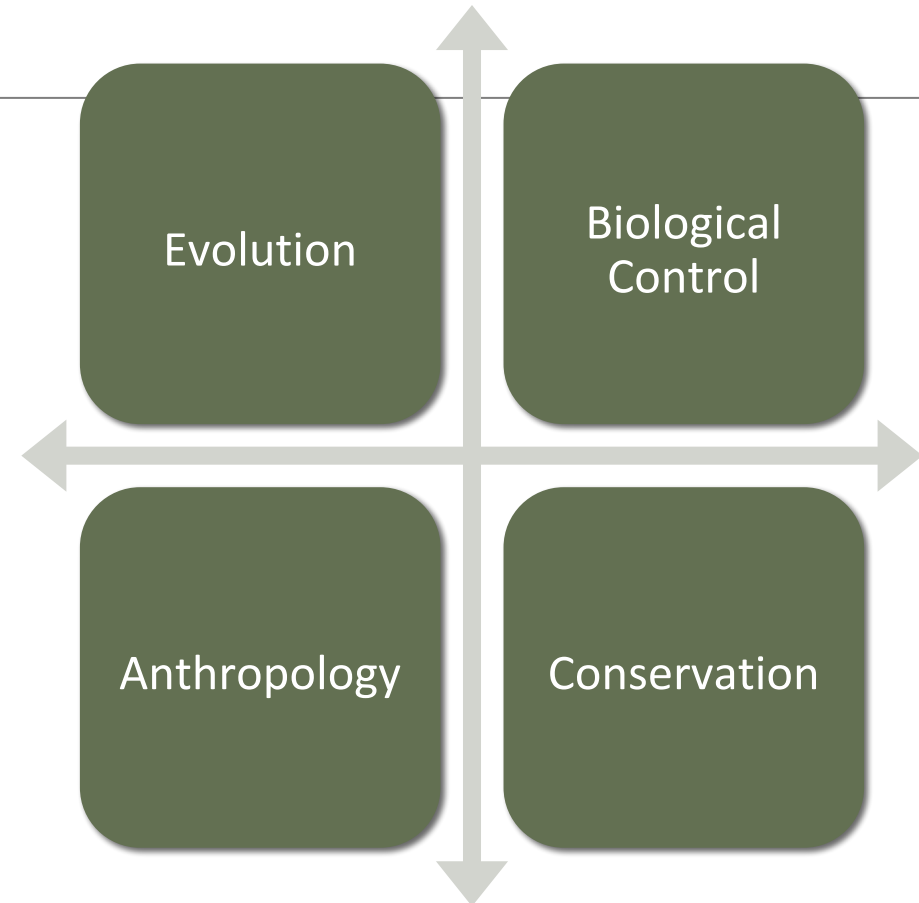


BITS, PILANI

BIRLA INSTITUTE OF TECHNOLOGY AND  
SCIENCE, PILANI

On  
29<sup>th</sup> April 2006

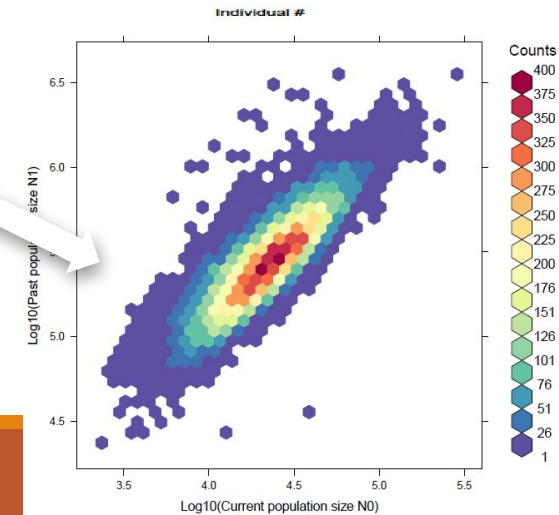
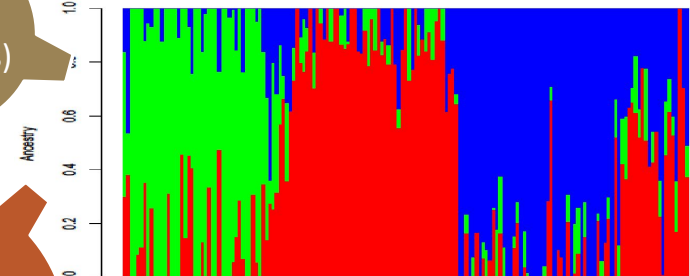
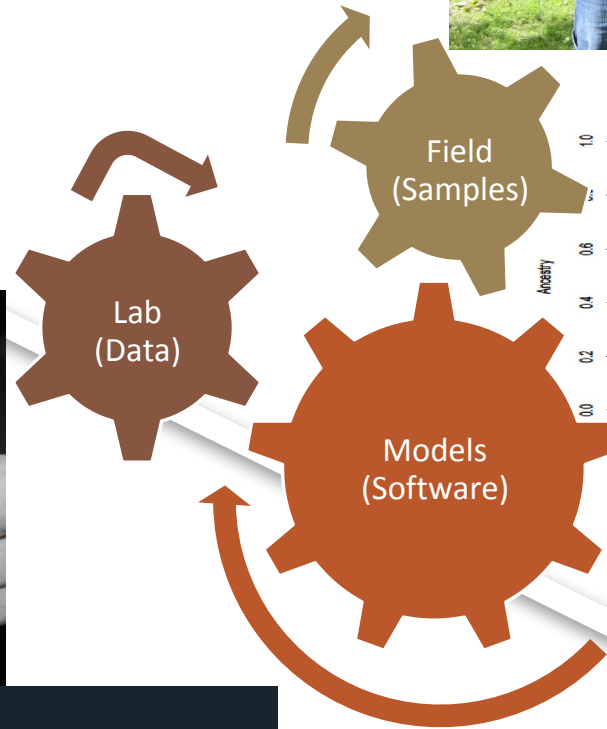
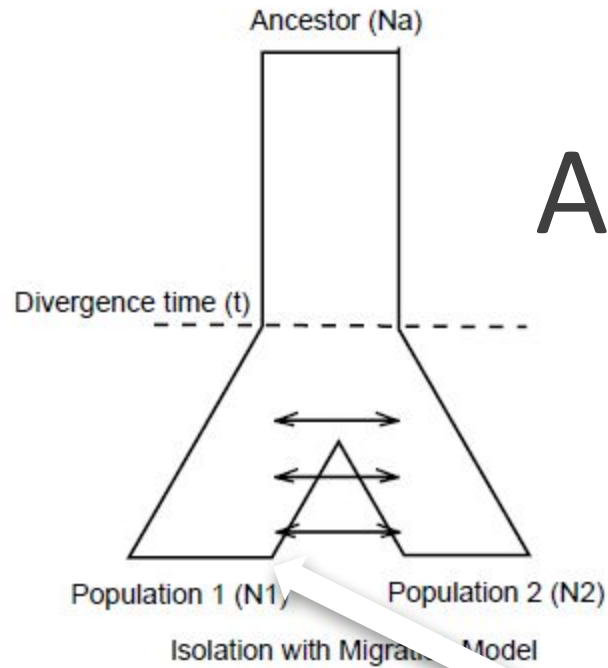
# What do I do?



**Population genomics**



# And how?



## 1000 Genomes

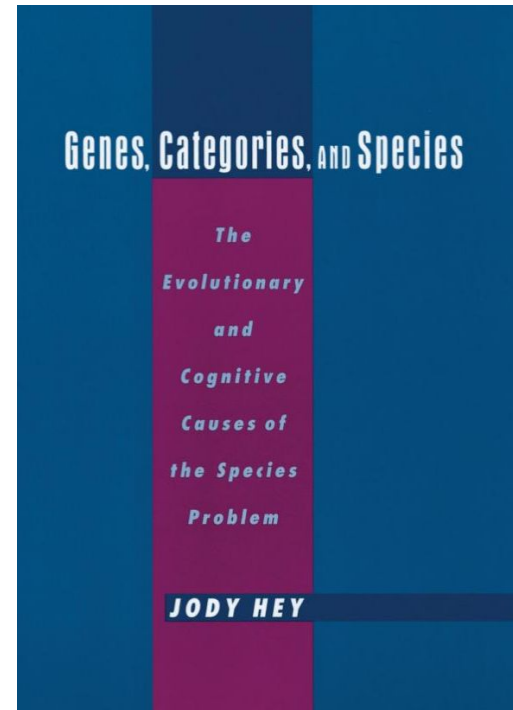
A Deep Catalog of Human Genetic Variation

# Some terminology

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1. Ancestry
2. Population structure
3. Population
4. Race
5. Ethnicity
6. Genealogy
7. Subpopulation
8. Subspecies
9. Species
10. Deme

“The crux of the species problem is the way that people devise and rely on categories.” – Jody Hey, *“Genes, Categories, and Species”*



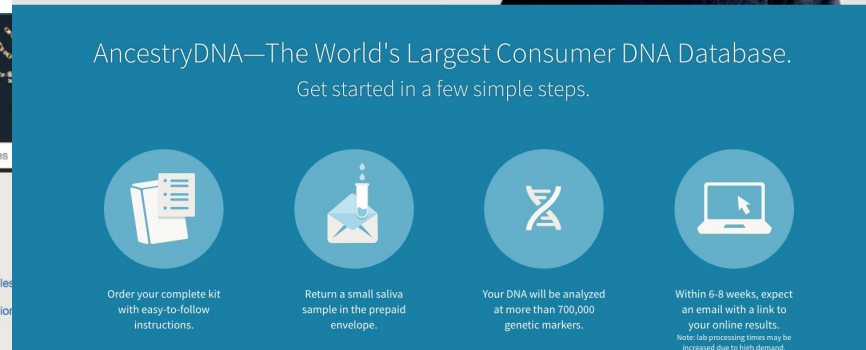
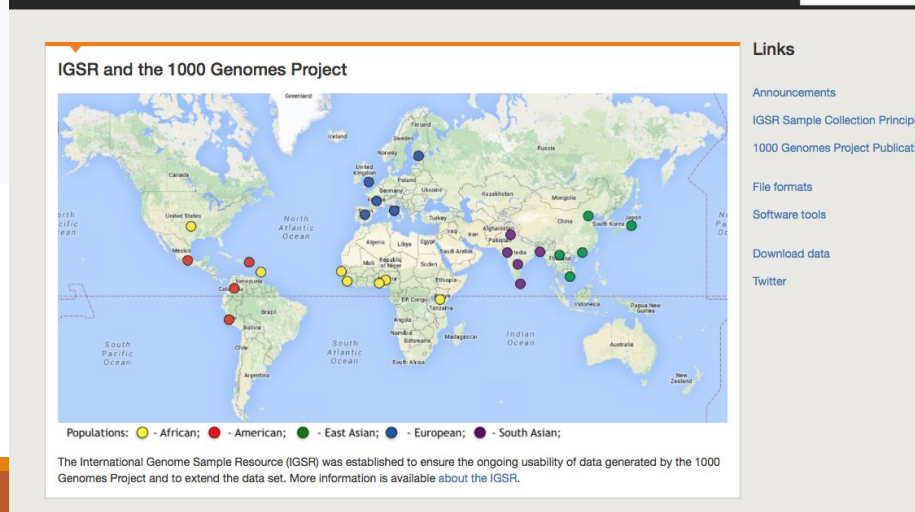
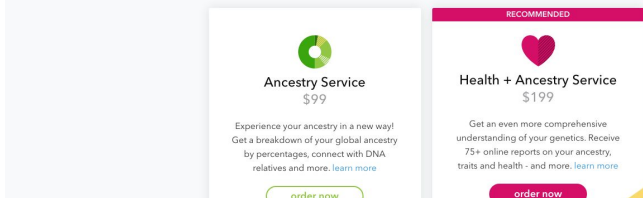
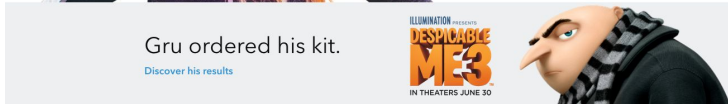
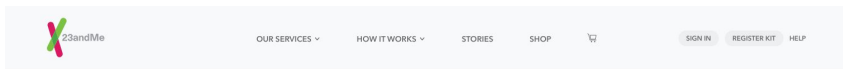
# Big question

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Given the genome of a person (and thousands of others), how do we identify their genetic ancestry?

In other words, given the variants (SNP's) in a person's genome, how do we assign each SNP to where it was derived from, i.e. ancestral population?

# The fascination continues...





# Not just modern humans...

