Rishabh Lala | PE

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Dynamic civil - Structural engineer with 6 years' experience involving data analysis, finite element analysis, bridges, & residentials

EDUCATION

University of Florida **(May 18)**
Master of Science, Structural Engineering   GPA: 3.77/4

Rajiv Gandhi Technological University, Bhopal, India **(June 16)**
Bachelor of Engineering and Master of Technology in Structural Engineering (Integrated)   GPA: 8.5/10

SOFTWARE SKILLS

Engineering: Steel Design and Concrete Design, Timber Design, RISA, SAP2000, FB Deep, GS Deep, ADINA, ANSYS, C++, Primavera, AutoCAD; FB Pier, Smart Bridge, Microstation, ADINA, LS-DYNA, STAAD.Pro, SAFE, SAP-2000, Midas Gen, ETABS, Visual Analysis, AxisVM, AutoCAD.

Forensic Testing: Wood decay test, Cut and Pull-out test, Concrete slump test, Rebar tension test, rebound hammer, ultra sound, structural investigation of condo roof and soffits, SB-4D Building Safety (Law) Experience

OTHER SKILLS

Report writing, client communication, work automations, and business development.

EXPERIENCE & COMMUNICATION

Southland Holdings – Project Engineer (Orlando, Fl)   Dec 22 – Present
- Communicating and providing solutions to field engineers and automating recurrent works through Excel
- Engineering, detailing, pre-planning each bridge construction phase, and helping field engineers solutions.
- Finite element modeling using SAP2000 and design for design of large steel formwork Dolphin Structure that protects the bridge from ship impact.
- Developed plans for execution of a bridge at US-19, Tampa, Fl that involved redrawing the bridge using AutoCAD, and phasing the sheet pile walls.
- Developed plans & solutions based on complex beam-bracing analysis through RISA (finite element) models.

McCall Engineering (Sarasota, Fl)   Jun 22 – Dec 22
- Developed good understanding of SB-4D Building Safety Law & made two marketing YouTube videos on it
- Forensic investigation of a 2-story condo roof and other components at Venice, Fl coastline hit by hurricane Ian & resolved their 60-day vacate notice issued by another engineer and guided them for insurance claims estimate
- Designed more than 35 one story houses and a few two-story houses
- Marketed, won, and completed a $16,000 engineering inspection project
- Calculations for many misc. projects like metal de-gasifier, specialized pit foundation, light gauge metal design

Florida Bridge and Transportation Inc (Orlando, Fl)   Jul 18 - May 22
-**Wekiva Section 8, Seminole County –** designed FIB girders, deck on this radially curved bridge, with skew close to 45 degrees on a 120 ft. span. Also, reviewed and marked the plans of the super and substructure.

-**Signature Bridge, SR 836 (I-395) Miami Dade County–** Worked with HDR as subconsultant for the plan development and rebar list development of the suspension cable bridge project, also called the Spider Bridge. Also developed built-in automation tool in the rebar listing methodology using Excel macros.

-**Other Bridge Projects**– I have worked on calcs (super and subsstructure), rebar list, and various other componer on Turnpike bridges, 408 bridges, Ped Bridge in Tampa as sub to Patel and Greene, and GFRP bridge in South Fl

-**Other Design Projects:** Retaining walls - gravity wall, sheet pile (sea walls), stem walls, MSE walls, mast   Oct 17- May 18
arms, strain poles, overhead sign structures, multipost, culverts, bridge BDR development, bridge temporary bracings, plans QC, quantity calculations on bridges, GFRP deck design, slab on grade, client coordination

Graduate Research Assistant, Advisor Dr. Gary R. Consolazio, Professor, UF
- Investigated truck impact on low profile concrete barriers using non-linear FEA simulations
- Finite Element modeling of Cannelton Dam piers.
- Simulating barge impact on the cylindrical concrete pier & resolved problems of initial penetration.
- Developed macros, Python programs for finite element data cleaning, extraction, transformation, and analysis
- Automated spot welds removal from output data, and few other recurring FEA solutions.
- ANSYS Mechanical APDL and ADINA: for appropriate mesh generation (parametrically)   Oct 17 – May 18

Florida Structural Engineering Association (UF - Chapter) (9 months)
- Supervised cash management activities like ensuring budget approvals and convincing sponsors.
- Actively organized skill-based workshops (MATHCAD, MATLAB)

OTHER PROJECT

Forensics (India)	Determined water-tank collapse cause NDT techniques (CAPO, RH, UPV, RC cover)	Apr 15 – May 15
Engineering (India)	Designed (STAAD, SAP, SAFE, ETABS) and detailed many concrete houses, buildings, and small industrial steel structures in India and for Middle Eastern country's clients.	Jul 14 – Jan 15

PROJECTS AT SOUTHLAND HOLDINGS

- **Nelson Rd Extension and Bridge: Luisiana:** Dolphins are structures used in Luisiana to prevent ship impact. They are round in shape and in deep water. The template to perform the operation is a beefy steel structure that I designed using SAP2000, Mathcad calculations, etc. and presented the connection drawings along with plan elevation layouts using AutoCAD. Three models were made to check 3 different conditions, during lift, during service, and during assembly. American Bridge engineers QCed my SAP2000 finite element model.

- **US-19: Bridge:** Planning Crane Picks, Sequence Drawings with temporary sheet pile wall locations, design, and Control Drawings. Field coordination to see which solution they prefer. Checking the feasibility of the 20 ft trench box. Relocating Many buried water mains and monitoring the construction activities to be in line with the plans. Planning truss erection with sequenced erection drawings and coordinating with field on lane closures and brainstorming on potential solutions. 3D drawings in AutoCAD Civil 3D for drainage solutions within the concrete pier as part of RFI responses.

- **Coordinating with field I-10 (Texas):** Bridge 1, 2, 3, 4, 5: designed beam bracing cap forming, deck overhangs, etc. on these bridges in Texas. Went to the on-site office to touch base with field staff, about their operations, and way of working. Designed cap forming, friction collars, and bracings for these projects.

- **Kirkman Road Ext: SR 435: Bridge 3, 4, 5, 6, 7 and value engineering Bridge 1, 2, 3, 4:** Bracing options, calculations, and drawings. I did RISA model runs and hand/Mathcad calculations to check and design the bracings for these bridges. Bridge 7 was exceptional with large and varying overhangs. The RISA finite element model of the bridge was made to check the loads and rotation limits of the exterior beam. The FDOT Mathcad sheet wasn't sufficient to satisfy the deflection and rotation limits. However, the bridge had large varying overhangs that were found to be unstable with conventional bracings. Therefore, we proposed using permanent diaphragms for roughly 140 kip-ft moment in Stage 2 loads and Stage 3 loads.

- **Kirkman Road Ext: SR 435: Bridge 5, 6, 7:** Erection Plans: type of crane, with its load carrying capacity, operating radius, and the access to truck was determined. Sequence drawings were produced. Also, I made site visits to see if the erection went per the plans. Some bridges required coordination with the EOR and/or MSE wall designer about locating the crane too close to the MSE walls, above the bent, use of low boy cranes, improving the capacity of the bearing surface, etc.

- **Kirkman Road Ext: SR 435:** watched the live demolition of an existing bridge using crane and hammer and participated in field discussions and brainstormed ideas about the bridge demolition. What capacity hammer may be needed or how each beam is supposed to be demolished, whether barriers will go first or the beam, the location of crane during the demolition, etc. Participated in calcs and other discussions involving the safety of the operation and the location of the crew.

- **Shands Bridge** - Jacksonville: CAD drawings on the pile template options, and mechanisms that can work to construct the large cylindrical piers in deep waters. Took part in meetings with Superintendents of the projects and other field crew to understand what they have in mind and attempted to put that on CAD and through design checks.

- **Discussing with Dr. Consolazio (and suggestions about discussions with FDOT)** – on beam bracing challenges for FIB 96 beams and participated in discussions on the requirements.

- **Misc:** Concrete grouting solution for temporary foundation utilizing existing broken concrete pieces from a demolition.

- **Changing CIP to Precast Deck Panel QC and engg. discussions**– this is a very unique Bascule Pier – SR-5: Palm Beach County - with varying thickness all along its length in all directions – (30 ft by 19 ft). Helped with its design calculation, unbonded post tensioned detailing, lifting case scenarios, rebar list development, modeling in SAP2000 getting loads on different sections, and using Beam-pro to check shears and moments.

- **Currently working on Dupont Bridge Proposal:** Coordinating with partner engg. firms on potential solutions of the type of bridge in deep and fast running waters, large foundations, eliminating piers, fender systems, piles types, span length, superstructure type: steel or concrete, access to bridge construction, potential use of Articulating Concrete Blocks, etc.