Eugenia Dushina studied at the University of Music and Performing Arts in Vienna. She is a diploma winner of the Grand Prix Maria Callas, the Ferruccio Tagliavini, and the Glinka Competitions.

In 2013, she made her debut at the Théâtre des Champs-Élysées in Paris in Rimsky-Korsakov's "Golden Cockerel." The following year, she made her Austrian debut at the Klosterneuburg Opera Festival, performing as Nedda in Leoncavallo's "Pagliacci." In 2017, she sang the title role of Fevronia in Rimsky-Korsakov's "The Invisible City of Kitezh" at the Norwegian Opera in Bergen.

In 2018, Dushina debuted in Tel Aviv as Donna Elvira in Mozart's "Don Giovanni" with the Chamber Orchestra of Israel under Maestro Zukermann. She also portrayed Violetta in Verdi's "La Traviata" at the Klosterneuburg Opera Festival and Hanna Glawari in Lehár's "The Merry Widow" at the Daegu Opera Festival in Korea, in collaboration with the Mörbisch Lake Festival.

March 2019 saw her debut as Liu in Puccini's "Turandot" in a co-production between the Vilnius National Theatre and the Royal Opera Madrid, staged by Robert Wilson. In July 2019, she performed as Giulietta in "The Tales of Hoffmann" at the Klosterneuburg Opera Festival.

The 2019-2020 season included engagements such as:

- "Ball der Sterne" at the Deutsche Theater in Munich
- "Ball of the Vienna Philharmonic" in Vienna
- Theater Lübeck: Donna Elvira in Mozart's "Don Giovanni"
- Ostrava Opera: Marietta in Korngold's "Die Tote Stadt"
- Opera Bergen: Gretchen in Schumann's "Faust-Szenen" and Cio-Cio-San in Puccini's "Madama Butterfly"
- Vilnius National Opera and Ballet Theatre: Liu in Puccini's "Turandot"
- Grieghallen Bergen: Liu in Puccini's "Turandot"
- Haifa Auditorium: "Vienna Gala Concert" with the Haifa Symphony Orchestra

From 2021 to 2025, her engagements included:

- Opera Toulon: Violetta in Verdi's "La Traviata"
- Erfurt Cathedral Hill: Agnès Sorel in Tchaikovsky's "The Maid of Orleans"
- Leman Festival, Finland: Floria Tosca in Puccini's "Tosca"
- Biel-Solothurn Opera: Maria in Tchaikovsky's "Mazepa"
- Israel Chamber Orchestra: Liesgen in Bach's "Coffee Cantata"
- Tyrolean Summer Festival: Summer night concert with the Munich Symphony Orchestra
- Bergen Opera: Nedda in Leoncavallo's "Pagliacci" and Micaëla in Bizet's "Carmen"
- Israel/Jerusalem Symphony Orchestra: Rosalinde in Strauss's "Die Fledermaus"
- Brussels La Monnaie: Cover for multiple roles in Shostakovich's "The Nose" and Rimsky-Korsakov's "The Tale of Tsar Saltan"
- Isar Philharmonie: Verdi Gala with the Munich Symphony Orchestra under Maestro Andrea Sanguinetti

- China Tour with the Wiener Klang Sinfonietta
- Ball of Lawyers in Vienna
- Tour in Israel with the Jerusalem Symphony Orchestra, performing as the Countess in Mozart's "Le Nozze di Figaro"
- Verdi-Wagner Gala with Thüringian Philharmony
- Teatro Real Madrid: Cover for the role of Militrissa in Rimskiy-Korsakov's "The tale of Tsar Saltan"
- Summer Night Concerts with Münich Symphony Orchestra under Maestro Sanguinetti
- Opera Bergen: Antonia and Giulietta in "Les contes d'Hoffmann" of Offenbach
- Israel Tour with Jerusalem Symphony Orchestra: Nedda and Santuzza in "Pagliacci" and "Cavalleria rusticana"